Annual Report

Department of Fisheries and Aquaculture

Prince Edward Island

for year ended December 31st

1990

91-03682/

TO HER HONOUR

THE HONOURABLE MARION REID,

Lieutenant Governor of the Province of Prince Edward Island

May It Please Your Honour:

I have the honour to submit herewith the Report of the Department of Fisheries and Aquaculture for the period ended December 31, 1990.

I have the honour to be,

Your obedient servant,

HONOURABLE LEONCE BERNARD,
Minister

TO THE HONOURABLE LEONCE BERNARD
MINISTER OF FISHERIES AND AQUACULTURE
Charlottetown, P.E.I.

Sir:

I have the honour to submit herewith the Report of the Prince Edward Island Department of Fisheries and Aquaculture for the period ended December 31, 1990.

Respectfully submitted,

Douglas A. Cameron,
Deputy Minister

TABLE OF CONTENTS

	Page No.
Foreword	4
Administration	7
Prince Edward Island Fisheries	11
P.E.I. Fish Landings and Values	12
Commercial Fisheries Branch	15
Extension Division	17
Resource Utilization and Marketing Division	28
Processing and Quality Division	48
Financial Services and Special Projects Branch	52
Aquaculture Branch	59

Appendices

1 - P.E.I. Lobster Landings and Values - 1920-1990	76
2 - General Fisheries Facts 1990	77
3 - P.E.I. Fish Landings - 1975-89 (Millions lbs)	78
4 - P.E.I. Fish Landings - 1975-89 (Millions $)	79
5 - P.E.I. Lobster Landings & Values - 1970-90	80
6 - P.E.I. Oyster Landings by Year - 1969-89	81
7 - P.E.I. Cultivated Mussel Landings by Year -1978-89.	82
8 - P.E.I. Production Sales - % of Value by Product	83
9 - P.E.I. Export Markets - % of Value Per Country,1989	84
10- Organizational Chart .	85

FOREWORD

ANNUAL REPORT

The Prince Edward Island fishing industry is a vital and significant contributor to the economy of the Province. Highlights from an economic analysis of the fishery carried out by our Department in 1990, and based on the 1989 fishing year, clearly illustrate that point.

Sales of fresh and processed fish products totaled $131.5 million and indirect benefits associated with the sale of those products were approximately $94.5 million for a total of $226 million. Indirect benefits include activities which support the commercial fisheries and aquaculture such as outfitting, vessel construction, maintenance of processing equipment and unemployment insurance benefits. The contribution of the fishery to the provincial Gross Domestic Product (GDP) at factor cost amounted to 5.4%, seafood products accounted for 35% of the Province's international exports and the fishing industry generated employment for 7,900 people which represents more than 10% of the provincial labor force.

Despite the continued importance of the fishery to the economy, 1990 marked the second successive year in which the value of P.E.I. fish landings was reduced after ten years of almost uninterrupted growth. The main factor which contributed to the decrease was a reduction in the value of lobster landings. A number of negative market forces converged in 1989 causing the international market for lobster products to suffer a severe downturn. This resulted in carry over of inventory and coupled with the prospect of strong landings in 1990, it led the Department to undertake a pragmatic approach to increased marketing and promotion of P.E.I. lobster.

A Special Lobster Promotion Program was negotiated with the federal government which will provide almost one million dollars to enhance marketing of P.E.I. lobster over a three year period. In 1990, the Program focused upon increased market awareness through atterdance at trade shows, organization of special promotions, the development of promotional materials and the gathering of market research. A very important activity undertaken as well during the past year was research aimed at developing new lobster products and the Program for the coming year will place priority on product and package development. While it is too early to determine the long term success of the Program, it is encouraging to note that the carry over 1989 inventory as well as the 1990 production by years end was virtually all moved through the market.

Our lobster industry faced additional challenges during the past year relating to access to the U.S. market. The U.S. government is scheduled to introduce further carapace size increases in 1991 and 1992 which will further restrict the movement of live lobster into the U.S. market. The failure of the Canadian government to agree with a negotiated settlement which would have seen these increases delayed could have a negative impact upon our ability to market lobster in the U.S. market. Additionally, seafood processors have had the traditional flow of processed products slowed by U.S. officials while lengthy testing procedures are carried out for listeria monocytogenes. The zero tolerance level for this naturally occurring bacteria may force our seafood processors to undertake costly heat treatment of ready to eat lobster products. The Department is supportive of work undertaken by the P.E.I. Seafood Processors Association at the P.E.I. Food Technology Centre to research best methods for heat treatment of lobster products.

The aquaculture sector of the P.E.I. fishing industry continued to grow in 1990. The production of "Island Blue" mussels increased. In addition, in the year the province experienced the further maturation of our small scale finfish culture and hatchery operations. The Department's ability to provide service to this important sector also increased with the addition of a finfish manager and finfish technician to the staff of the Aquaculture Branch. As well, the funding to the sector, through the Canada-P.E.I. Cooperation Agreement on Fisheries Development, is providing the resources necessary to expand culture to new species and introduce efficiencies and technological improvements to existing operations. The aquaculture sector continues to afford opportunities for expanding the Province's resource base and creating additional employment in the fishery.

1990 saw the herring fishery rebound from the market problems experienced in 1989. In the year, landings more than doubled. Despite this marked improvement, the herring fishery remains basically directed toward the production of roe and an opportunity exists to better utilize the resource through development of a food fishery in tandem with roe production. To assist in addressing this issue and the need to further develop the mackerel fishery, our Department formed a Herring and Mackerel Development Committee in late 1990. The Committee consists of fishermen, processors and government members and I look forward to their efforts mapping a course to gain more benefit from the herring and mackerel fisheries.

Management issues related to the Atlantic Canadian groundfish fishery received widespread attention during the past year and major stock reductions precipitated the development by the federal government of the Atlantic Fisheries Adjustment Program. Closer to home, the cod quota in the Southern Gulf is

scheduled to be reduced in 1991, the Department of Fisheries and Oceans is proposing a user-pay dockside monitoring program for 1991, increased conservation and protection measures are being implemented and consideration is being given to broadening the Enterprise Allocation system. All of these issues require deliberate and detailed consideration before being implemented.

Our Department remains committed to representing the interests of the P.E.I. fishing industry as these issues unfold and continue to stress the need by the federal resource managers to allow for meaningful dialogue and consultation with members of the industry before final decisions are reached. There is an increasingly deep-rooted fear that in their zeal "to solve the problems" the federal government will create additional hardship for the industry unless a cooperative approach to problem solving is maintained.

Similarly, the Department has worked closely with the fishing industry to press the federal government to ensure long term equitable participation by P.E.I. fishermen in the Gulf of St. Lawrence Snow Crab fishery. The move by Department of Fisheries and Oceans in 1990 to promulgate regulations for a restrictive P.E.I. zone is viewed as a regressive step in re-establishing the Province's historical participation in this fishery.

As we look ahead to 1991, it is safe to predict that the ever-evolving process of managing the fisheries resources will continue to bring change to the P.E.I. fishing industry. The effects of a recessionary economy, the Persian Gulf Crisis and competitive market pressures will present challenges to our fishing industry.

The crucial importance of the fishery to P.E.I. demands continued leadership by the Department in addressing these issues as they unfold. It also demands strong organizations in both the fishing and processing sectors and a continued co-operative approach to address challenges and to capitalize on development opportunities.

In that respect, I want to sincerely thank the fishermen's and processor's organizations in P.E.I. for the advice, understanding and co-operation they have shown to both myself and my staff during the past year. To the staff of the Department of Fisheries and Aquaculture, I want to express appreciation for a job well done in serving the interests of the P.E.I. fishery.

Douglas Cameron,
Deputy Minister

DEPARTMENT OF FISHERIES AND AQUACULTURE

ADMINISTRATION

The approved budget for the Department of Fisheries and Aquaculture for the fiscal year, April 1, 1989 to March 31, 1990 was $2,833,100. Total expenditures were $2,453,616.28

Total Revenue for the 1989-1990 fiscal year was $153,126.41.

The programs of the Department were carried out by 22 full time staff during 1989-1990.

A detailed expenditure report of the department for fiscal year 1989/90 follows:

REPORT OF DEPARTMENT EXPENDITURES
April 1, 1989 - March 31, 1990

Expenditures	Original Estimate	Actual Expenditure
FISHERIES ADMINISTRATION		
Administration	41,500	65,613.11
Equipment	10,400	33,733.20
Materials/Supplies	3,400	3,341.26
Professional Services	34,500	31,737.83
Salaries	260,900	238,242.73
Travel	30,800	32,086.43
TOTAL	381,500	404,804.56
EXTENSION		
Administration	1,000	839.96
Materials/Supplies	158,600	101,904.37
Professional Services	34,500	32,002.76
Salaries	98,900	99,115.45
Travel	21,500	26,157.15
P.E.I. Fishermen's Ass'n.	30,000	30,000.00
P.E.I. Seafood Processors	9,900	17,000.00
Travel Grant for Fishermen	10,000	6,036.74
Baitshed Program	8,000	26,000.00
TOTAL	372,400	339,056.43
RESOURCE UTILIZATION AND MARKETING		
Equipment		
Materials/Supplies	48,800	65,977.63
Professional Servs.	5,600	10,513.43
Salaries	254,600	251,314.44
Travel	31,200	38,651.15
Test Production	35,000	15,612.46
Product Utilization	80,000	62,835.46
TOTAL	455,200	444,904.57

Expenditures	Original Estimate	Actual Expenditure
PROCESSING & QUALITY		
Equipment	7,500	5,870.17
Materials/Supplies	5,000	4,612.40
Salaries	112,800	103,680.36
Travel	26,200	25,970.22
Processors Quality	100,000	95,480.06
Processors Technology Dev't Program	126,000	118,938.93
TOTAL	377,500	354,552.14
AQUACULTURE		
Equipment	28,500	27,764.71
Materials/Supplies	37,400	30,208.67
Professional Servs.	15,000	15,000.00
Salaries	341,700	263,864.97
Travel	4',,500	31,269.02
Malpeque Oyster Cultures Inc.	1,300	269.00
Shellfish Enhancement Program	80,000	80,000.00
Loan Guarantee Write off	0	24,842.73
Mussel & Trout Expansion	50,000	11,770.00
Technology Dev't	100,000	41,997.00
TOTAL	701,400	526,986.10
FINANCIAL SERVICES		
Salaries	52,600	51,976.01
Travel	4,500	8,652.18
Commercial Fishermen's Investment Incentive	163,000	162,999.43
Fishermen's Groundfish	165,000	139,684.86
Nearshore Vessel	160,000	20,000.00
TOTAL	545,100	383,312.48
GRAND TOTALS	2,833,100	2,453,616.28

REVENUE

April 1, 1989 - March 31, 1990

FISHERIES ADMINISTRATION		
Miscellaneous	$ 156.00	$ 156.00
RESOURCE UTILIZATION		
Miscellaneous	1,000.00	1,000.00
PROCESSING/QUALITY		
Miscellaneous	$ 22,000.00	$22,000.00
AQUACULTURE		
Aquaculture Incentive Grant	$ 15,803.21	$15,803.21
ERDA	93,167.20	$ 93,167.20
FINANCIAL SERVICES		
Miscellaneous	21,000.00	21,000.00
TOTAL DEPARTMENT REVENUE		**$153,126.41**

PRINCE EDWARD ISLAND FISHERIES

Preliminary figures for the year 1990 show an overall increase in landings compared to the 1989 recorded figures, from 124,417,442 lbs. in 1989 to *142,393,914 lbs. in 1990. This represents an increase of 14.1%. The total landed value of all fishery products was *62.3 million, a decrease of 14.2% over the 1989 value. *It must be noted that preliminary figures for the oyster and quahaug fisheries are not complete and landings and values will be adjusted upward.

The industry presently employs approximately 7900 people; approximately 5500 in fishing and 2400 in processing. Many more are employed in industries which support the fishery such as outfitting and vessel construction. An economic analysis of the P.E.I. fishery carried out in 1990 revealed that sales of fresh and processed fish products and indirect benefits associated with the sale of those products generated a total of $226 million for the P.E.I. economy in 1989.

Total groundfish landings in 1990 increased to 44.0 million lbs. representing a 17.9% increase from 1989. The value increased by 9.3% raising the value to $6.5 million. The dominant groundfish species was redfish with landings increased from 20.7 million lbs. in 1989 to 30.0 million lbs. in 1990. This represented an increase of 44.8%. Cod landings decreased by 28.0% from 8.1 million lbs.in 1989 to 5.8 million lbs. in 1990. The value of these landings decreased by 28.1%. Hake landings decreased by 1.8%, from 3.9 million lbs. in 1989 to 3.8 million lbs. in 1990. The value of these landings decreased by 1.7%. Landings of all flatfish, which include greysole, yellowtails, blackbacks and flounder have decreased by 16.6% while the value decreased by 25.0%

Landings of all pelagic and estuarial fish increased to 33.3 million lbs., up from 18.3 million lbs. in 1989, representing an increase of 82.6%. The value of these landings increased by 36.8% to $4.3 million. Herring landings increased from 9.1 million lbs. in 1989 to 26.8 million lbs. in 1990, an increase of 194.0%. The value of these landings increased by 253.0% Mackerel landings decreased by 30.1% with decrease in value of 12.7%. Eel landings increased from 238,232 lbs. in 1989 to 442,319 lbs. in 1990. The value of these landings increased by 124.7%, raising the value to $663 thousand. Smelt landings decreased by 36.6% while their value decreased by 50.4%. Silverside landings increased from 80,629 lbs. to 134,970 lbs. Tuna landings decreased by 45.2% with a recorded landing of 74,916 lbs.

Because preliminary figures are not complete for oyster and quahaug landings, it cannot be determined whether an overall increase in mollusc and crustacean landings occurred. However,

lobster landings increased by 5.6% in 1990, with a decrease in value of 12.4%. Mussel landings increased by 10.4% with an increase in value of 3.5%. Snow crab and rock crab landings decreased by 33% and 24.8% respectively. The value of snow crab decreased from $2.4 million to $1.3 million.

Seaplant landings decreased by 244 thousand pounds to 32.4 million lbs. in 1990, however, the value increased by 4.2% giving a total value of $3.4 million.

The landed weight and value for fish and seaplants in P.E.I. in 1990 with comparative figures for 1989 are as follows:

P.E.I. FISH LANDINGS AND VALUES
1989-1990

SPECIES	**1989**		**1990***	
Groundfish	**Pounds**	**Value $000**	**Pounds**	**Value $000**
Cod	8,125,609	$ 1,625	5,847,236	$ 1,169
Hake	3,926,165	471	3,855,017	463
Flounder	2,110,743	633	1,206,980	302
Blackback	1,561,567	390	1,868,045	467
Greysole	17,638	3	13,110	3
Yellowtail	14,222	3	4	--
Redfish	20,749,414	2,801	30,036,222	4,055
Halibut	3,487	3	2,305	3
Haddock	15,034	6	22	--
Pollock	77,465	15	10,436	1
Tomcod	13,611	3	2,982	1
Dogfish	150	--	599,147	42
Shark	283	--	456	--
TOTAL	**36,615,388**	**$5,953**	**43,441,962**	**$ 6,506**
Pelagic				
Tuna	136,775	$ 820	74,916	$ 734
Mackerel	7,626,782	915	5,329,848	799
Herring	9,105,599	455	26,771,416	1,606
Gaspereaux	389,047	78	135,831	20
Eel	238,232	295	442,319	663
Smelt	543,835	244	344,734	121
Silverside	80,629	12	134,970	20
Salmon	652	2	2,500	9
Trout	136,800	342	112,075	356
TOTAL	**18,258,351**	**$ 3,163**	**33,348,609**	**$ 4,328**

N.B.: Trout value for 1990 includes $68,750 for off-island egg & fingerling sales. No figure is available for 1989. Figures represent trout cultured in fresh water.

Trout & Salmon figures complied by P.E.I. Department of Fisheries and Aquaculture.

SPECIES	1989		1990*	
	Pounds	Value	Pounds	Value
Shellfish				
Lobster	21,252,284	$46,058	22,451,862	$40,348
Bar Clam	942,413	377	1,410,534	423
S.S. Clam	388,770	311	313,270	188
Quahaug**	1,314,993	1,533	245,633	197
Scallop	262,403	1,180	217,422	978
Mussel	5,386,276	4,309	5,944,973	4,459
Oyster**	4,170,275	3,753	71,384	71
Snow Crab	1,867,469	2,427	1,250,654	1,251
Rock Crab	1,003,740	201	754,323	151
Bay Scallop	36,000	75	-	-
TOTAL**	**36,624,623**	**$60,224**	**32,660,055**	**$48,066**
TOTAL FISH**	**91,498,362**	**$69,340**	**109,450,626**	**$58,900**
IRISH MOSS	**32,666,696**	**$ 3,266**	**32,422,768**	**3,404**
TOTAL FISHERY PRODUCTS**	**124,165,058**	**$72,606**	**141,873,394**	**$62,304**

* Preliminary

** Quahaug and oyster landings and values for 1990 represent the only information available at the time of publication and do not reflect activity in these fisheries during 1990. Consequently, total landings and values for Shellfish, Total Fish, and Total Fishery Products for 1990 are higher than the figures indicated.

* Preliminary

The following table shows the comparisons for P.E.I.'s landings and values, by species groups, over the period 1970 - 1990.

PRINCE EDWARD ISLAND, 1975-1990
Landings, Quantity and Values by Species Group
(In thousands of lbs. and thousands of dollars)

		Groundfish	Pelagic & Estuarial	Molluscs & Crustaceans	Marine Plants	Seafish Total Excluding Marine Plants	Total
1975	Q.	15,032	5,529	11,352	40,318	31,914	Q. 72,232
	V.	1,058	670	9,078	1,610	10,806	V. 12,416
1976	Q.	14,972	6,998	11,263	28,843	33,233	Q. 62,075
	V.	1,091	1,077	9,673	878	11,841	V. 12,719
1977	Q.	22,454	5,548	11,849	30,116	39,851	Q. 69,967
	V.	2,137	1,156	10,786	1,085	14,078	V. 15,164
1978	Q.	28,248	8,850	15,307	31,709	52,905	Q. 84,614
	V.	3,154	1,605	17,928	1,873	22,697	V. 24,560
1979	Q.	33,995	10,581	16,716	42,943	61,273	Q.104,216
	V.	4,300	1,898	20,259	2,689	26,457	V. 29,146
1980	Q.	42,252	1,238	16,475	35,225	70,966	Q.106,191
	V.	4,672	2,302	18,037	1,781	25,011	V. 26,792
1981	Q.	45,144	14,035	17,568	37,485	76,747	Q.114,231
	V.	5,413	2,309	22,258	1,874	29,982	V. 31,856
1982	Q.	42,223	18,046	18,672	34,043	78,942	Q.112,986
	V.	4,823	2,524	26,379	1,702	33,726	V. 35,428
1983	Q.	45,039	20,736	21,955	28,709	87,730	Q.116,439
	V.	4,883	3,539	34,365	1,435	42,787	V. 44,222
1984	Q.	41,646	15,581	21,579	34,724	78,806	Q.113,585
	V.	4,461	3,262	28,323	1,736	36,046	V. 37,821
1985	Q.	34,247	20,280	26,580	38,402	81,107	Q.119,509
	V.	4,823	3,639	40,905	2,496	49,366	V. 51,863
1986	Q.	30,116	33,880	31,435	27,785	95,431	Q.123,216
	V.	5,587	4,812	54,999	1,806	65,398	V. 67,204
1987	Q.	28,366	33,988	29,830	30,586	92,183	Q.122,770
	V.	7,512	4,916	58,421	2,141	70,848	V. 72,989
1988	Q.	30,383	29,216	33,904	33,142	93,504	Q.126,646
	V.	4,624	4,344	66,746	2,628	75,714	V. 78,342
1989	Q.	37,300	18,258	36,625	32,667	92,183	Q.124,850
	V.	5,960	3,163	60,224	3,266	69,346	V. 72,612
1990*	Q.	43,442	33,349 **	32,660	32,423**	109,451**	Q.141,873
	V.	6,506	4,328 **	48,066	3,404**	58,900 **	V. 62,304

* Preliminary

** Preliminary figures for oysters and quahaugs are incomplete. Therefore these figures will be adjusted upward.

COMMERCIAL FISHERIES BRANCH

Lewie Creed, Director

The Commercial Fisheries Branch is responsible for carrying out a full range of programs and services for P.E.I. fishermen and processors. The Branch includes the three Divisions of Extension, Resource Utilization, and Processing and Quality.

The Director is also responsible for ongoing liaison with the Department of Fisheries and Oceans and provides support services on issues addressed by the Federal Provincial Atlantic Fisheries Committee and the Atlantic Council of Fisheries Ministers. As well, the Director coordinates the Department's interface with other Provincial Departments and Agencies.

During 1990 the Commercial Fisheries Branch devoted a great deal of time and effort to improving the long term market viability of the Province's most important fish species, lobster. Programs undertaken through the Special Lobster Promotion Program are detailed under the activities of the Resource Utilization Division and are seen as the first step in a three year approach to focus the lobster industry on market diversification and expansion.

The Branch provided leadership in addressing a number of fisheries management issues with the Department of Fisheries and Oceans. These included continued efforts to secure equitable access for P.E.I. fishermen to the Gulf of St. Lawrence snow crab stocks, numerous groundfish management matters, the Atlantic Bluefin Tuna Management Plan and management of the small pelagics fishery.

The Branch continued programming to assist the seafood processing industry to maintain high quality standards. The Brarch worked cooperatively with the processing sector to assist in meeting provisions of the code of Good Manufacturing Practices and the Quality Management Program, both of which have been instituted by the Department of Fisheries and Oceans.

The maintenance of port structures and safe access to the fishing grounds are a priority for the P.E.I. fishing industry. The Branch worked with port committees throughout the Province to identify port needs and assisted in presenting these needs to the federal government. As well, a number of minor port improvements were carried out to assist in maintenance and upkeep of these federal structures.

CANADA/P.E.I. COOPERATION AGREEMENT ON FISHERIES DEVELOPMENT

In October 1989, a five year $10.6 million Cooperation Agreement on Fisheries Development was signed between the Government of Canada and the Government of Prince Edward Island. The Agreement covers the period April 1, 1989 to March 31, 1994 and calls for $7.5 million in development expenditures by the Department of Fisheries and Oceans and a total of $3.1 million in development expenditures by the P.E.I. Department of Fisheries and Aquaculture.

The Director provided support services to the Management Committee which was formed to implement programs under the Agreement. Membership on the Management Committee consists of the Director-General and a representative of the Atlantic Canada Opportunities Agency, representing the Federal Government, the Deputy Minister, P.E.I. Department of Fisheries and Aquaculture and a representative of the P.E.I. Executive Council Office representing the Province. The Committee regularly reviews programs and projects to be implemented under the Agreement and prepares reports for Ministers on activities undertaken.

The Director also co-chairs the Agreement Coordinating Committee with the P.E.I. Area Manager, Department of Fisheries and Oceans. The Coordinating Committee reports to the Management Committee and is responsible for the day to day operation of the Agreement.

A detailed report on the activities of each Division follows.

EXTENSION DIVISION

Friend Herring - Manager
Rory McLellan - Extension Specialist

The Extension Division provides the communications function for the P.E.I. Department of Fisheries and Aquaculture and promotes meaningful exchanges of information between the Department and the various sectors of the fishing industry, the media and the public.

The principle purpose of the Division is to liaise with fishermen, and various fishery organizations to promote and improve positive developments at the ports, within the communities and the industry. To achieve this goal, local port meetings are organized, technical and safety courses are sponsored, and travel is arranged to educational and technical seminars, work shops and conventions. News releases concerning the fishery and the Departments involvement in its development and management are drafted and published in addition to other printed matter of an educational benefit to schools and the public.

In an effort to bring government services to the communities, the Extension staff maintains office hours on a part-time basis at the various Regional Service Centers. During 1990, Friend Herring continued to be the Department's contact to the western ports of the Province and was available Thursday mornings at the Center in Summerside and every Thursday afternoon in O'Leary. Rory McLellan represents the Department at the eastern harbours and uses Montague office as a base on Tuesdays and Souris on Wednesday afternoons. Contacts made either by this method or direct telephone with the main Charlottetown office led to many follow-up visits to progress matters of interest to the fishermen at their homes or shore sites.

Staff from the Division represented the Department on a number of groups developing policies and procedures to deal with several topics.

Numerous meetings have been held and are ongoing concerning an "Interdepartmental Committee on Grants" which allows for a 50-50 cost-sharing to a maximum of $1,500 to assist festivals/events, fairs and exhibitions. Presently, an evaluation form/questionnaire is being completed to give a result which can be measured in some form. Avoiding duplicate funding is to be one of the prime benefits of this groups efforts who consist of representatives of the following: Community and Cultural Affairs; Tourism and Parks; Agriculture; Fisheries and Aquaculture and Treasury Board.

Members from Federal and Provincial Agencies completed a "Marine Spill Support Plan" during the latter part of 1990. The objective of this plan is to facilitate and co-ordinate the Prince Edward Island Government and its agencies response in support of the lead agency to a major marine spill incident. Copies of this plan are available from the Emergency Measures Organization.

Ongoing meetings have been held to deal with the loss of lobster buoys, caused from towed barges using the Northumberland Strait. The fishermen representatives are awaiting a Coast Guard chaired meeting between themselves and the five principle towing companies operating on Canada's East Coast. A negotiated compromise is the aim of fishermen operating from Island and mainland ports.

Beginning in September, the Lennox Island Indian Band requested Fisheries and Oceans Canada to develop an agreement to allow for the co-operative joint management of a food fishery. A draft agreement is being developed by Department of Fisheries and Oceans Gulf Region. The Agreement will be progressed through a Committee made up of seven members of the Band, the Department of Fisheries and Oceans, and the Provincial Department of Fisheries and Aquaculture.

For the past number of years, the Department has arranged for summer students to be employed at Miminegash to receive and analyze Irish Moss samples for moisture, foreign materials and sand content. Daily boat counts were conducted from Howards Cove along to North Cape and down to Kildare Cape in order that the fishing effort could be monitored.

FISHERMEN'S INFORMATION SERVICE

A number of information programs were organized or continued and carried out by the Extension Division during the year. These programs, which are intended to disseminate information to the fishing industry and the general public, include:

Radio Broadcasts

The weekly five minute radio broadcast covering fish prices and markets was improved and now carries general fisheries information. The show now features music produced and recorded by fishermen as well as topical information on landings, market conditions, meeting notices and training courses.

This program which is aired on radio stations CFCY, CHTN, CJRW and Q93 FM began its 1990 production on April 14th and has been expanded to a year round service. The Broadcast continues to be aired at 6 A.M. and 6 P.M. each Saturday.

Newspaper Ads

The Division is responsible for the majority of newspaper advertising purchased by the Department and in 1990 it produced and published over 25 ads in local and regional newspapers and magazines. A number of news releases on projects and programs of the Department were provided to the local media and national trade journals.

Booth Displays

Display booths were placed at major fairs and exhibitions held throughout P.E.I. The purpose of the displays was to increase and promote general awareness of the P.E.I. fishing industry and the role of the Department.

Summer employees Denise Rogerson and Shelly Stewart were responsible for assembling the displays and supervising their operation at the various events. In 1990, displays were placed at the West Isle Marine Show, the Tignish Irish Moss Festival, the Summerside Lobster Carnival, Armed Forces Day, the Northumberland Fisheries Festival, Brackley Day, the Tyne Valley Oyster Festival, Old Home Week and the Kensington Harvest Festival.

The Division's 15' x 8' full colour, bilingual booth display was again prominent at these events and was improved in 1990 with the addition of fish professionally re-created by a taxidermist.

Events of special note were the Souris Regatta where the Division sponsored prizes, the St. Lawrence Scallop Festival where the Division sponsored prizes and assisted in judging the competition, and the Northumberland Fisheries Festival where the Division sponsored prizes and took part in a "Fish Off", a deep sea fishing competition.

Publications

The Extension Division revised and updated a number of species information pamphlets on lobster, cod, scallop, oysters, soft-shell clams, mackerel, tuna and Irish moss.

The Division continues to upgrade our library with species materials and to publish Fishermens Record Keeping books. In addition, publications such as the "East Coast Marine Weather Manual" by Environment Canada and "A Coast Guard Study into Fishing Vessel Safety" by the Canadian Coast Guard, are made available to fishermen on request.

Subscriptions to most National and many International fisheries publications continue to be made available to the industry, as do contacts the Division has in many parts of the world, who supply up to date information on landings, markets and management changes.

In 1990, the Division published two newsletters which were written by representatives of fishermen and processors. These letters were sent to all Island fishermen and fish plants, as well as made available to the public.

In its role as the communications function of the Department, the Extension Division continues to print and distribute literature from other divisions which outline Department programs and policies.

Fishermen, students and the general public are always invited to view and use department materials for research or other purposes.

SCHOOL PRESENTATIONS

The Division continued to provide Island primary and secondary schools with "in class" demonstrations and a film, lecture series on our fishery. Each year this presentation is improved as our film "The Island Fishery" is expanded and updated. This year a number of presentations were made at Island schools and over 250 written requests from students throughout North America were answered.

FILMS

The video, "The Island Fishery", continues to be updated and in 1990, a major new segment on the herring fishery was included. This film depicts the fishing industry in Prince Edward Island and includes information on the various species fished, as well as fishing and processing methods.

"The Island Fishery" is one of a number of films available in our expanding video library. All videos and films are made available to the fishing industry and are available to schools and the general public for educational purposes.

TRAINING COURSES

This year emphasis turned more towards safety at sea and less on mechanical or technical training such as the basic welding instruction. This was a natural reaction and reflection of the interest of the Island's fishermen on this subject.

Beginning in October, 1989, the Division again prepared and mailed out a training course brochure listing all of the existing subjects which had been offered during the previous year but also requesting suggestions as to new courses beneficial to the Island's inshore fishermen.

A well attended Fishing Master IV course was given in Souris for the benefit of a dozen local fishermen. The Souris Regional High School was the location for a 30 hour, basic welding course, taught for 3 hours each night. A nets and gear repair session was given at the new Alberton Lions Club Building and lasted four weeks with 12 West Prince County fishermen attending. Captain Buddy MacCormack was the instructor for this January course and in February he gave a similar school for a dozen fishermen in the Southern Kings County area at Murray River Community Centre. The participating students, who were usually relatively new entrants to the fishery, were pleased with both the instructor and the subject matter as presented in these courses.

A new effort undertaken during the winter session was swimming instruction for fishermen. The pool at the Mill River Resort was rented one evening a week during January and early February for the use of 10 - 12 county fishermen. A local Red Cross instructor gave patient and professional instruction with positive results.

During the latter part of 1990, fishermen in the Howards Cove area showed an interest in a proposal from the Division to offer an Emergency Action Safety Course for inshore fishermen. The course consisted of training in firefighting, basic first aid, and water survival with emergency suits, work suits and inflatable life rafts, along with a day to refresh fishermen on basic navigation such as the rules of the road and plotting a course. The thirteen local vessel captains who took this training endorsed both the content and the objective of making P.E.I. fishermen more safety conscious.

Another three day course on the same subject was given at the Murray River Community Centre in December with an enthusiastic group endorsing the course. Other ports requesting similar training in the new year are Souris, North Lake, West Point and Tignish.

Safety was continued as a theme with a group of fourteen Georgetown area fishermen who requested and received a Fishery Master IV course which began studies on December 10th and will carry on for a total of eight weeks. Cost-shared by the local Community Futures Group of Eastern P.E.I., instruction consisted of chartwork (2 weeks), electronic instruments (2 weeks) rules of the road (3 weeks) and one week of first aid and marine emergency

duties. Interest and federal financial assistance is also in place for a Fishing Master IV course at both Murray Harbour and Tignish early in January.

Part of our developing society involves the use of computers and the fishing industry is no exception. The Southern Kings Consolidated School offered a course on an introduction to computers which began in December. The 15 hour course was in response to the interest shown by fishermen and their wives who wish to use this new technology in their business. Holland College Courses through out the Province provide a similar service.

TECHNICAL UPGRADING TOURS

On January 17th, the Division organized and supervised an educational trip by van to the Massachusetts Lobstermen's Association's 27th Annual Weekend Convention held at Hyannis, with 12 P.E.I. fishermen taking part. All fishing regions of the Province were represented and participants were members of local fishermen's organizations and held positions on their executive boards.

More than 1,000 United States lobster fishermen attended this marine equipment display, seminar/workshop conference to deal with subjects such as marine safety regulation changes, carapace size increases and research projects undertaken along the eastern seaboard. Most issues of concern and the changes happening in the U.S. fishery are also common to and of grave concern to P.E.I. and the Atlantic Fishery.

The group also visited the College of the Atlantic at Bar Harbour, the Portland Fish Auction and the New England Aquarium in Boston on the travel through to Cape Cod.

Later in the year, a group of eight Island longline fishermen, representing groundfish license holders, attended a day long symposium in Halifax on November 14th. The Division organized this travel, by van, and approximately fifty per cent of the costs were covered and shared with the participating fishermen which is the Department's policy. Longlining, as a more selective and economical method of harvesting cod, was promoted by the various international industry speakers and they reported their results of fishing with longline gear.

The Department works closely with the Prince Edward Island Fishermen's Association to progress species policies and studies. In January, the Department paid for a consultant to lobby our interests in Ottawa with Fisheries and Oceans on the subject of a Tuna Management Plan for 1990. Assistance was also given towards

the cost of the annual convention held each year in November, as well as publishing and postal costs of several mail-outs to the Provinces 1,400 bonafide fishermen.

The Maritime Fishermens Union was assisted with funds to conduct a feasibility study for developing markets and products for mackerel and a report is on file with the Department.

FISHERIES CONFERENCE

The Division, working with the Regional Service Centers at Souris, Montague, Summerside, Wellington, and O'Leary, organized and sponsored the first Provincial Fisheries conference entitled "The Fishery, The Community, The Future" held at the Rodd Mill River Resort on March 8th and 9th.

This conference was attended by over 200 fishermen and included speakers on many topics pertinent to the role of the fishery on rural community development. The conference began with regional representatives relating success stories on how their communities had been enhanced by Fisheries development.

Senator Michael Kirby spoke at the opening banquet and reviewed the accuracy of his 1982 report, nearly a decade later.

The next day Wayne Shinners gave an overview of the fishery from a Department of Fisheries and Oceans perspective, Dave Shortall spoke of marketing our fish products from an External Affairs viewpoint and Richard Ablett of The Food Technology Center explained his agencies services.

Mr. William Adler, Executive Director of the Massachusetts Lobstermen's Association gave an entertaining presentation on his organization's history, priorities and self-funding. The closing keynote address was presented by the Honourable Leonce Bernard. All of the fishermen attending this conference regarded it as a tremendous success.

This conference was held immediately following the 8th Annual Marine Diesel and Electronics Show, held at the West Prince Center in Elmsdale. Once again, the Division assisted organizer Mary Lou Rogers of Holland College and further assisted the show by offering door prizes. Once again, the show was a success and plans are being made for another show in 1991.

SPECIAL MEETING

On October 31, 1990, the Extension Division organized a special meeting for Port Committee chairmen. The meeting was attended by 31 chairmen who discussed concerns particular to

their wharves and shared among many ports. The major issue mentioned by most chairmen was the need for dredging and sand removal from the shore.

Jim Morriscey of the Harbours and Infrastructure Branch of the Department of Fisheries and Oceans spoke on the problems associated with dredging. He stated that dredging was an annual need and continually a problem due to the need for long term planning, environmental impact studies and cost.

At lunch, the Honourable Leonce Bernard addressed the Port Chairmen and spoke on the Department's environmental concerns. He pledged a new waste oil program described elsewhere in this report.

In the afternoon, Captain John Burch spoke on a new "Marine Emergency Action Course" which was designed by him with input from the Division.

PORT MAINTENANCE

During the year, the Province continued to operate and maintain electrical services at a number of shellfish park sites and at wharves located in Summerside, Souris and Newport. New or additional systems were installed at Cascumpec, Miminegash Irish Moss Museum, Howards Cove and York Point. The total number of electrical services is now eighteen but the Division still acts as a liaison between port representatives requesting electrical repairs and the Harbours and Infrastructure Branch of Fisheries and Oceans who are responsible for the electrical services at most wharves.

Work continued on concrete slab haul-outs during the year and in order to improve existing facilities and to install at new sites, 300 new slabs were instructed for use at Cardigan, St. Peters Bay, Battery Shore, Mount Stewart, Ten Mile House and Corran Ban Bridge. Work was not completed at St. Peters Bay and requests have been received for a new slip at Brudenell, plus improvements to Waterside/Pownal Bay and Dry Wharf, Inverness, for 1991. The Department also carried out minor repairs involving paving, graveling, repairs to rip rap etc. at a number of P.E.I. ports. Work during the year was carried out at the following harbours: York Point, Wood Islands, Tracadie, Stanley Bridge, Sea Cow Pond, Skinners Pond, Pinette, Nine Mile Creek, Mink River, Miminegash, Malpeque, Machon's Point, Higgins Wharf, Grahams Pond, Georgetown, Fortune, Darnley, Cape Egmont, Annandale and Abrams Village/Egmont Bay. At several of these locations, the cost of work was shared equally with the Harbours and Infrastructure Branch. (Formerly known as Small Craft Harbours Branch.)

In 1990, the Port Custodian, or Night Watchman Program was continued with a number of port committees and was funded by the Department of Health and Social Services. Twenty-Three 10 week positions were created and could have been increased except for the shortage of clients. Because of the Employment Enhancement Training Program, eligible workers were not available to the ports but where local Social Services offices can refer people to the ports, the program will continue.

PORT WASTE DISPOSAL SYSTEMS

During the year, a project was undertaken with Harbours and Infrastructure Branch to provide government approved waste oil containers at several of the Island's busiest ports. Five steel 200 gallon tanks (5-1/2' diameter x 3' high) were placed at Tignish Run, Judes Pt., Northport, Beach Point and Montague. Fishermen used these containers and local waste oil users emptied them.

Another improvement to be made is more 45 gallon drums to contain solid waste such as cardboard, paper, plastic and glass. Arrangements are being made for recycling companies to provide a pickup service for this solid material.

Large oil collector tanks will increase from six in number to total 21 when the fishing season begins in April, but calculations show that this number should be closer to 40 or 45. 1991 will be another "learning" year and with the cooperation of the port fishermen and their representatives, environmental improvements will increase. Plans for the upcoming season will be progressed with staff of Harbours and Infrastructure Branch.

FISHERMEN'S HOLDING FACILITIES

The Fishermen's Holding Facilities, or Baitshed Program, was continued during the fiscal year. Financial assistance of 75% of the material costs required to construct new units (maximum grant is $1,000 per unit on new construction, maximum $600 per unit for up-grading existing buildings) is available to each fisherman on a once only basis. Because of the lower prices in the lobster fishery and lower landings of groundfish, money for construction of baitsheds was tight from the fishermen's standpoint.

During the past year, the Howards Cove fishermen renovated 19 of their existing motel style baitshed units and made significant improvements to the looks and life of their buildings. A new baitshed was constructed at Tignish Run and several other units will be completed in 1991.

MARINE MAMMAL REMOVAL PROGRAM

Again this year, the Department was responsible for the removal and disposal of stranded marine mammals from Island shore locations. This year was a busy one with larger numbers of white-sided dolphins entering estuaries near Summerside, Charlottetown and the Lower Montague area.

This past season, eleven seals were removed from Island shores, usually along the Northumberland Strait area, and some of these were delivered to the College for use by the Museum of New Brunswick. They are looking for particular parasites and worms along with obtaining skeletons for display and scientific purposes.

At Roseville, a sperm whale drifted over from a New Brunswick shore where Federal Fisheries and Oceans anchored it the fall before. Pieces of the skeleton were retrieved by employees of the Museum and it appears the animal had originally stranded at Covehead.

Two pilot whales (mother and infant) died near Sturgeon after rescuers worked for several days to save the pair. The whales were buried nearby by a local contractor. Eleven white-sided dolphins, principally from the Summerside - Bedeque Bay area were removed with nine of these being delivered to the Vet College for examination.

One big improvement which developed during January of 1990 was the forming of a P.E.I. Stranding Network under the leadership of Ms. Pat Grey. Her knowledge, interest and enthusiasm led to the organizing of public minded individuals, university students and instructors, along with related government agencies to form this Network. This is a growing trend with different Maritime nations such as Australia, Scandinavia and both coasts of the United States forming capable and successful rescue groups.

The results of this year's work can claim success in refloating several dozen white-sided dolphins thus eliminating a potential cost to the Province of several thousand dollars in removal expenses. Whether these animals survived or not is impossible to determine but at least they were given a chance and the efforts of the Stranding Network are to be commended

Whenever a stranding occurs, Professor Pierre-Yves Daoust is notified and usually he and his Atlantic Veterinary College students perform a necropsy on the animal to learn as much as possible about the physical condition and cause for the stranding. There is an excellent cooperation and interest from

Dr. Daoust and several of his colleagues. Therefore, the Department does everything possible to make the necropsy work accessible at the site and as quickly as possible.

Marine Safety

The Division represents the Department on the Canadian Marine Advisory Committee, a National body which meets in Ottawa each May and November, and on the Regional Marine Advisory Committee which meets four times a year at various times and locations throughout the Maritimes.

In 1990 both committees were still considering "Proposed Small Fishing Vessel Safety Regulations" a document arising out of the 1987 "Coast Guard Study Into Fishing Vessel Safety". The regulations under consideration pertain to all aspects of vessel design, construction and safety equipment aboard fishing vessels.

The documents contained in the new regulations are monitored by staff of the Division and meetings to involve fishermen in the process will be held in early 1991.

MANAGEMENT MEETINGS

Staff of the Extension Division represented the Department on various industry committees including: the District 7B, 7B1 and 8 Scallop Advisory Committees, the District 7B, 7B1 and 8 Lobster Advisory Committees, the Seaplants, Smelt, Eel and Atlantic Bluefin Advisory Committees. These groups develop management proposals on an annual basis for consideration and approval by the Federal Minister of Fisheries and Oceans.

The Division maintains liaison with the Workers Compensation Board, agencies of the Canada Employment and Immigration Department, Customs and Excise Canada and the Federal Department of Transportation on matters affecting fishermen.

RESOURCE UTILIZATION DIVISION

David Younker - Manager
David Gillis - Biologist, Gerry Ridgeway - Economist
Shelley Murphy - Home Economist
Phyllis MacKenzie - Statistics and Market Information (Acting)

The Resource Utilization Division represents the interests of the P.E.I. fishery in management consultations carried out with the Federal government to develop fishing plans for various fish species. This Division promotes the maximum utilization of P.E.I. fishery resources, provides services to co-ordinate raw material supply with market demand, carries out a variety of promotional programs and develops and maintains statistical and market information to support the objectives of the Department.

Major objectives of the Division are:

- To develop a data base and to carry out social, economic and biological assessments in order to effectively represent P.E.I. in the management consultations carried out by the Federal Department of Fisheries and Oceans.

- To provide a service to the industry in test marketing new products.

- To provide market intelligence to the P.E.I. fishing industry.

- To promote the consumption of fish products both locally and outside the Province.

- To work with the fishing industry and other related Departments in developing new products for expansion and modernization of processing capability in order to increase the value of P.E.I. fisheries resources.

During the past year, the Division implemented a new Special Lobster Promotion program which was funded jointly by the P.E.I. Department of Fisheries and Aquaculture, the Federal Department of Fisheries and Oceans and the Atlantic Canada Opportunities Agency.

A brief description of the programs, projects and activities carried out by the Resource Utilization Division during 1990 is as follows:

MANAGEMENT

Staff of the Division continued to represent the Department on a number of species' Advisory Committees and Working Groups during the past year. These Committees included those dealing

with Atlantic Groundfish, (AGAC) Gulf Groundfish, Gulf Snow Crab, Gulf and Northern Shrimp and Small Pelagics (herring and mackerel). Working Groups and Special Committees active in the last year included the Canada-France Advisory Working Group, the NAFO Consultative Committee, the Special Committee on the Conservation and Protection of Gulf Groundfish Stocks and the Federal Provincial Atlantic Fisheries Committee (FPAFC) Working Group. These Committees and Working Groups provide a forum through which the Minister of Fisheries and Oceans seeks advice from the fishing industry and the Provinces on the management of the various fisheries. Provincial representation in this process ensures that the interests of the Province in fisheries management issues are heard and that a vital flow of information is maintained to Provincial interests concerning the general state of the Canadian and World fisheries.

To ensure effective Provincial representation at the national and regional level, the collection and delivery of information required is facilitated through a series of local P.E.I. species Advisory and Working Groups and through personal contact with the P.E.I. industry on an ongoing basis.

The following brief overview summarizes some of the fishery management issues which were addressed during 1990.

(a) **Groundfish**

The 1990 cod fishery was characterized by lower landings through the spring and summer fisheries by most fleets in the southern Gulf of St. Lawrence. Possibly due to environmental conditions, the bulk of the cod stock moved across the northern portion of the southern Gulf and did not appear in strength near P.E.I. shores. Conversely, the fall fishery for mobile gears in the southeastern Gulf showed good catch rates. Fixed gear catch rates, however, remained low throughout the 1990 season.

The small vessel (<45') mobile gear cod quota was divided into two sections for 1990. P.E.I. vessels fished in the Gulf South section which included vessels from Gulf Nova Scotia and the Magdalen Islands. The Gulf 50' - 65' mobile gear fleet introduced transferability into their Enterprise Allocation Management System, becoming the first individual transferable quota (ITQ) fishery in Canada.

Concern for the current and continued health of the southern Gulf cod stock has prompted the Department of Fisheries and Oceans to adopt a more conservative approach in setting the quota for this stock. Reductions for 1991 will be primarily directed at reducing the size of the winter fishery by larger vessels, although all fleets will experience some reductions. As a result, no improvement in the already tight allocations to smaller mobile fleets can be expected in the near future.

Redfish landings on P.E.I. strengthened in 1990, though markets were soft. Allocations to the Gulf Plant Delivery Program, which a number of P.E.I. plants utilize, were reduced by the Federal Department of Fisheries and Oceans in 1990. For 1991, allocations to both the offshore fleet and the Gulf Plant Delivery Program will be reduced.

In response to industry and government concerns, the Special Committee for the Conservation and Protection of the Gulf of St. Lawrence Groundfish Stocks was created late in 1990. This committee developed a package of measures to increase levels of conservation and protection in the entire Gulf groundfish fishery, much of which is scheduled to come into effect in 1991. Elements of the package include a dockside monitoring program, increased protection for juvenile fish, stepped up surveillance on land, at sea and in the air, and stiffer penalties for violators.

(b) **Rock Crab**

The 1990 season saw little change by way of management of the fledgling rock crab fishery. Overall landings were down in 1990, although not as far as was anticipated at the beginning of the season. During the past year, the Department of Fisheries and Oceans initiated planning for a scientific assessment of this resource. This assessment had been requested by industry and the Province to obtain information on the sustainable resource of rock crab in Island waters. Market development and increased processing of meat remain keys to the furtherance of this fishery in coming years.

(c) **Herring**

On Prince Edward Island, the herring fishery consists of a spring and fall season. In the spring fishery, Island fishermen landed 682 tonnes of herring which was used for bait and for producing smoked bloater herring products in New Brunswick.

During the fall fishery, herring are primarily exploited for their roe which is sold to the Japanese. Landings in the eastern Northumberland Strait totaled 11,260 tonnes in 1990. Of this amount, 10,315 tonnes were harvested in Fishermen's Bank zone, and 945 tonnes were harvested by Island fishermen in the Pictou Island zone.

In the western Northumberland Strait, mobility exists between management zones. In 1990 Island fishermen landed 2,170 tonnes and New Brunswick fishermen harvested 766 tonnes of herring in the Western P.E.I. area. During the past year, discussions between Island and New Brunswick fishermen, and Department of Fisheries and Oceans were held over the sharing of quota in the Western P.E.I. and Escuminac management zones.

(d) **Mackerel**

In 1990, Island fishermen harvested 2,095 tonnes, or 42 percent of all mackerel landings in the southern Gulf.

Higher harvesting costs vis-a-vis other producing nations makes it difficult to market the resource. Despite these obstacles, the mackerel fishery plays an important role in the incomes of inshore fishermen, and in the lobster fishery where mackerel is used for bait.

TEST PRODUCTION/PRODUCT UTILIZATION

(i) Dogfish Pilot Fishery - North Lake Fish Co-op organized an experimental fishery for dogfish and undertook a pilot processing operation in the fall of 1990. Assistance was provided by the Department to both aspects of this initiative. Catches, using a range of fixed gear types, were lower than anticipated and the processing operation never fully developed as a result. Nevertheless, under the guidance of an experienced dogfish consultant under contract to the Department, the equipment required for manual processing was set up and some introductory training in processing procedures was accomplished. Other dogfish ventures in the Province were reported in 1990 and the Department is actively encouraging an expanded dogfish fishery for 1991.

(ii) Sea Urchin Sampling - A series of commercial-sized sea urchin samples was collected from two sites through the period from breakup in late March to mid May. Samples were evaluated both at the Department's laboratory in Charlottetown and by a large commercial producer in Eastern United States. Overall, urchins were found to be in good commercial condition through this period and market reaction was quite positive. A survey to determine if commercial quantities of such urchins exist has been designed and may proceed in 1991.

(iii) Herring - A project was entered into with North Lake Fish Co-op Ltd. to purchase equipment to process herring roe. The equipment allowed herring to be separated by gender, thereby obtaining greater processing efficiencies.

(iv) Cultured Mussels - An automatic bagging machine with the capability of bagging various types of shellfish into a retail pack was purchased by Atlantic Aqua Farms, with assistance from the Product Utilization Program. The project will assist the "Island Blue" mussel industry in an increasing competitive marketplace.

(v) Rock Crab - A project was undertaken with Gallant Fisheries Ltd. to assess the pasteurization and shelf life of rock crab and bar clam meat. The project will assist this processor to diversify and produce more value added products.

PROMOTION

Special Lobster Promotion Program

The dramatic softening of lobster markets which began in 1989, the carry over of product inventory and the prospect of another year of strong landings in 1990 demanded improved marketing and promotion of lobster.

On May 11, 1990, a three year $2.4 million Special Lobster Promotion Program was announced involving the Federal Government and the Fisheries and Aquaculture Departments in P.E.I. and New Brunswick. The annual budget for the Program for P.E.I. is $300,000 with funding equally shared by the P.E.I. Department of Fisheries and Aquaculture, the Department of Fisheries and Oceans, through the Canada - P.E.I. Cooperation Agreement on Fisheries Development and the Atlantic Canada Opportunities Agency. Program delivery is the responsibility of the Department of Fisheries and Aquaculture.

In Prince Edward Island, activities undertaken in the program were carried out in close consultation with fishermen's and processors organizations. A P.E.I. Working Group was formed which included membership from the P.E.I. Seafood Processors Association, the P.E.I. Fishermen's Association and federal and provincial departments and agencies. As well, a Program Advisory Committee, co-chaired by the Deputy Minister of Fisheries and Aquaculture in P.E.I. and New Brunswick was formed to co-ordinate activities on a regional basis.

The initiatives for P.E.I. for 1990 were undertaken with a view to mounting a multifaceted approach to marketing and promotion, assessing success and focusing the Program in the remaining two years on areas of proven success. Activities undertaken in 1990 were in the areas of (A) Market Research; (B) Promotional Materials; (C) Advertising; (D) Trade Shows; (E) Product Development (F) Product Demonstrations; (G) Joint Industry Initiatives and (H) Special Promotions. Certain aspects of the Program were carried out in conjunction with other Maritime Provinces and the Marketing Division of the Development Agency assisted in some projects.

Following is a summary of the activities that were carried out in 1990 including some initiatives undertaken by the Department prior to the formal announcement of the Program:

(A) Market Research

West Coast Study (U.S.A.)

A comprehensive lobster market study was carried out by Sax Maritime Associates (a California based firm) to conduct research utilizing the "focus group" approach in Los Angeles, California. A report was prepared on this research and will be used to determine marketing strategy in California. This work was undertaken on a cost-shared basis with the Province of New Brunswick.

East Coast Study (U.S.A.)

A study was undertaken by Halleran Public Relations (a Boston based firm) in the New England area of the U.S.A., utilizing focus groups, intercept interviews in supermarkets and discussions with food service and restaurant executives to obtain information on the lobster market preferences in this area. This study was approved following a request for this market information by the P.E.I. Seafood Processors Association.

(B) Promotional Materials

(i) Design Associates, a local Charlottetown firm was contracted to develop an integrated series of lobster promotional materials. This material is currently being produced and will consist of a logo, themeline, brochures, posters and other items to be used by government and industry for promoting lobster products.

(ii) Lobster Video - the Department contracted to have a promotional video prepared depicting lobster from the water to the table. This video will be available for use at trade shows and other promotional events.

(C) Advertising

(i) The Marketing Division of the P.E.I. Development Agency carried out media tours to P.E.I. by writers from three major seafood magazines - Seafood Leader, Seafood Business and Food Service and Hospitality. Follow up articles on the Island's lobster fishery were carried by these respective magazines.

(ii) Advertisements were prepared and carried on processed lobster products in the Alberta Restaurant Foodservice Publication as well as the October issue of the Canadian Grocer.

(iii) Planning was carried out and an advertising campaign was undertaken by the Island firm Polar Productions, using satellite broadcasting to 57 radio stations across Canada.

(iv) The Department contracted the services of Julie V. Watson and Associates to prepare a series of press kits on lobster which were distributed to the media across Canada and to selected newspapers in the U.S.A. in November and December.

(D) Trade Shows

(i) Lafayette, Louisiana

An International Business Exchange Trade Show and International Festival was held in Lafayette, Louisiana, from April 17 to 19, 1990. The Department of Fisheries and Aquaculture, in conjunction with Tour Acadie, attended these events to promote lobster products. Honourable Leonce Bernard, Minister of Fisheries and Aquaculture, led the Island delegation.

(ii) Solo Seafood Show, Detroit, Michigan

A solo show organized by the Canadian Consulate was attended by the industry and staff of the P.E.I. Development Agency on May 1, 1990. Lobster buyers were present for this promotion and received information on Island lobster products.

(iii) National Restaurant Show, Chicago

This National Show, which ran from May 19 - 23rd, was attended by a representative of the P.E.I. Seafood Processors Association and staff of the Development Agency. Contacts were established and follow up undertaken in this market area.

(iv) Texas Food Industry Assoc. Trade Show

Department staff attended the Texas Tradeshow held June 10 - 12th in San Antonio, Texas. Also participating were Alan Baker, P.E.I. Seafood Processors Assoc. and Chef Hans Anderegg from the Culinary Institute in Charlottetown. Honourable Leonce Bernard, Minister of Fisheries and Aquaculture led the Island delegation.

(v) Food Pacific 90

The Department participated in the Food Pacific Tradeshow in Vancouver held August 16 - 18, 1990. This show was attended by a representative of the P.E.I. Seafood Processor's Association, the Deputy Minister of the Department of Fisheries and Aquaculture and Hans Anderegg from the Culinary Institute. Lobster products were promoted to both National and International visitors to this show.

(vi) Western Restaurant Show, San Francisco

Development Agency staff carried out a promotion in San Francisco from August 25 to 28th, where California and other visiting buyers were provided with information on Island seafood products.

(vii) Ontario Restaurant and Food Exhibition

Staff of the Development Agency organized a P.E.I. lobster promotion at the ORFEX in Ottawa, September 16 and 17, where lobster products were promoted to those attending.

(viii) Alberta Restaurant and Food Services Association Show

The Department participated in the Alberta Restaurant and Foodservices Exhibition on September 19 and 20th, in Edmonton, Alberta. This show was also attended by a representative of the P.E.I. Seafood Processor's Association and Hans Anderegg of the Culinary Institute in Charlottetown, who prepared specialty lobster products for demonstration.

(ix) SIAL, Paris

Support was provided for the Provinces participation in the large International Food Show held from October 22 to 26th in Paris, France. Local processors and marketing representatives attending presented lobster products to international buyers attending this event.

(x) Seafare Southeast, Orlando, Florida

Industry representatives, staff of the P.E.I. Development Agency and Chef Graham Taylor from the Culinary Institute attended this trade show from October 31 to November 1st, in Orlando. Lobster products were promoted and trade leads established.

(E) Product Development

Product development initiatives on new lobster products have been undertaken with three P.E.I. processors in conjunction with the P.E.I. Food Technology Center. As well, a project on new lobster products carried out under the sponsorship of the P.E.I. Seafood Processors Association, in conjunction with the P.E.I. Food Technology Center, received support under the Special Lobster program. Other projects are being planned and will be undertaken early in 1991.

(F) Product Demonstrations

(i) Product demonstrations were carried out in Toronto, Ontario, in conjunction with a large supermarket chain which increased sales over 1989 during this campaign.

(ii) Product demonstrations on frozen lobster were carried out with positive results in supermarket chains in Alberta, in November and December. This promotion was carried out in conjunction with a large Alberta seafood wholesaler and the Province of New Brunswick.

(G) Joint Industry Initiatives

This program provided 50% assistance to a maximum of $5,000 for processors to undertake projects to improve market access. A number of projects were undertaken with individual firms in advertising, attendance at trade shows, and other related projects during the year.

(H) Special Promotions

(i) Flamboro Downs

A promotion was undertaken at Flamboro Downs in Hamilton, Ontario, in co-operation with other government departments and private industry. Edouard Babineau, President of the P.E.I. Seafood Processors Association and Deputy Minister, Doug Cameron, were also in attendance and lobster products were promoted throughout the day.

(ii) Sea Sell Promotion

The Department participated in the Sea Sell Tourism Promotion which visited Boston, Baltimore and Philadelphia from the 7th to 25th of April. Promotional literature on lobster was provided for distribution to visitors to the M.S. Scotia Prince, the ship utilized in promotion in the three major U.S. centers.

(iii) Billingsgate Fish Co. Ltd.

The Department and the Development Agency carried out a promotion on lobster with Billingsgate Fish Co. Ltd. in Calgary, Alberta. This Company featured lobster at a number of locations throughout Alberta during the month of May and increased their sales volume over previous years. This promotion was also supported by the Provinces of Nova Scotia and New Brunswick.

(iv) Boston Consulate Promotion on Frozen Lobster

Department staff participated in a promotion of frozen lobster products which was organized by Consulate staff on April 19th. U.S. buyers and Canadian suppliers attended and lobster was displayed, in prepared form, by Hans Anderegg from the Culinary Institute located in Charlottetown. An exchange of views on the lobster market took place and a report on the seminar was prepared by the Consulate.

(v) Canadian Chef's Association Annual Meeting

P.E.I. lobster was featured at the Annual Meeting of the Canadian Chef's Association, held in Winnipeg, in June. Dismas LeBlanc, from the Culinary Institute, attended and featured dishes of P.E.I. lobster and distributed promotional literature to the many chefs in attendance.

(vi) Italian Buyer's Mission

A group of Italian fishing industry representatives visited the Province in late May and were hosted by the Federal International Trade Office, and the Department. The group toured fish processing plants in the Province to receive information on P.E.I. fish products with a view to establishing sales from P.E.I.

(vii) Culinary Masters

The 1990 Culinary Masters competition was held in Charlottetown - October 22 - 28, 1990. P.E.I. lobster was featured at this International competition among chefs and food service professionals. Lobster products were provided for the competition by the Department.

(viii) VIVA 90

The Department provided assistance to Julie V. Watson to attend the VIVA 90 consumer trade show in Vancouver, British Columbia. Lobster products were promoted to the large number of consumers who attended this event.

(ix) Royal Winter Fair

In cooperation with the P.E.I. Potato Marketing Commission, the Department attended the Royal Agricultural Winter Fair on November 10 - 11, in Toronto, to promote lobster products in the Commission's booth. The Department also participated in the Minister of Agriculture's reception, held on November 12, at the Royal. Seafood brokers and distributors from the Toronto area were invited to attend. Department staff and Edouard Babineau, President of the P.E.I. Seafood Processors Assoc. attended the reception.

(x) CALPA

A financial contribution of $5,000 was made to assist the newly formed Canadian Atlantic Lobster Promotion Association. This Atlantic wide Association has, as its mandate, the generic promotion of lobster products. A staff member of the Division serves as an advisory member to the Association.

(xi) Lobster Promotion In Europe

Assistance was provided to the Federal Department of External Affairs Trade Commissioners in the three major centers of London, Paris and Amsterdam, to carry out a promotion on North American lobster products in October, 1990. Seafood buyers in these three centers were in attendance to sample product and receive information. Richard Chaisson from the Culinary Institute prepared the products. This project also involved participation by the Province of New Brunswick.

PROMOTION (General)

Retail Trade

A seminar, sponsored by the Division, was held for seafood retailers from across P.E.I. A variety of topics were covered, including; trout handling practices, merchandising Bay Scallops, a review of the Island Fishery, seafood merchandising and promotion and advertising seafood outlets.

The "Seafood Bulletin", a quarterly newsletter for seafood retailers on P.E.I. was published and distributed to sixty-two retailers. The purpose of the newsletter is to keep retailers up to date on what is happening in the fishing industry.

TRADE SHOWS

(a) **Canadian Food and Beverage '90**

Staff of the Division assisted the P.E.I. Development Agency and Atlantic Fish Specialities in staffing a booth at the Canadian Food and Beverage show in Toronto.

(b) **Apex '90**

The P.E.I. Department of Fisheries and Aquaculture in conjunction with the Nova Scotia and New Brunswick Departments of Fisheries staffed a Maritime fisheries booth which promoted seafood products and June Seafood Days. The show was held in Moncton, March 4 - 6, 1990.

(c) **APEX Food and Beverage '90**

The APEX Food and Beverage Show was held in Halifax, November 18 - 19, 1990. The Department carried out a joint promotion with N.S. and N.B. to promote Maritime lobster.

SEAFOOD AWARENESS

(a) **Seafood Barbecues**

The "Out of the Sea and Over The Coals" barbecue promotion program was carried out in National, provincial and private campgrounds from June to September. Two summer students were employed to visit the campgrounds and conduct demonstrations which concentrated on how to barbecue and otherwise prepare seafood. Approximately 2000 people attended these demonstration throughout the summer.

In addition to the campground demonstrations, summer staff also participated in a number of fishery festivals that were held across the province. The major fishery festivals attended included the Northumberland Fisheries Festival, The Irish Moss Festival and The Souris Regatta.

(b) **Car Ferry Displays**

One summer student was hired to set up a display booth on the car ferries "M.V. Confederation" and "M.V. Abegweit". During the crossings the preparation of seafood dishes was demonstrated, samples were distributed and information on P. E. I. seafood was provided.

(c) **Canadian Seafood Advisory Council**

The Department contributes financially to and is a member of this National organization which consists primarily of members of the seafood industry. The Canadian Seafood Advisory Council is responsible for coordinating national promotions of seafood such as November Fish and Seafood Month, the Neptune Awards and other national programs.

(d) **Seafood Demonstrations/Displays**

(i) Instore Demonstrations - a series of instore demonstrations were carried out during the month of June. A variety of seafoods were prepared with samples and recipe brochures distributed.

(ii) Booth Demonstrations - a summer employee carried out seafood cooking demonstrations in conjunction with the general fisheries booth that the Extension Division of the Department placed at major Island festivals.

(iii) Special Events - Special displays were set up for events such as the Westisle Marine Show, the annual Women's Institute Conference and the Community Future's Annual Conference.

(iv) Culinary Masters - The 1990 Culinary Masters was an International culinary competition held in Charlottetown, October 22 - 27. The Department participated by setting up a display promoting PEI seafood products

(v) Fisherman's Association Annual Meeting - A seafood cooking demonstration was conducted for fishermen's wives during the Annual Fisherman's Association meeting.

(e) **Promotional Material**

(i) "All About Prince Edward Island" - In co-operation with P.E.I. seafood retailers, a full color, two page advertisement was inserted in the "All About Prince Edward Island" publication. The ad featured a color photograph of Island seafoods and a locator map identifying nineteen participating retail establishments.

(ii) Restaurant Menu Book - In co-operation with the P.E.I. Department of Agriculture, a full page color advertisement was placed in the Island Restaurant Menu Book. Approximately 50,000 copies of the book were distributed across P.E.I.

(iii) General - an assortment of promotional materials, including brochures, posters, hanging mobiles, pins, aprons and stickers were reprinted and used in an effort to gain increased exposure for seafoods. These materials were distributed in response to numerous requests from retailers, consumers and educators.

(f) **Advertising**

Advertisements on the variety and availability of Island seafoods were placed in newspapers and magazines throughout the year and regular consumer articles were inserted in a local newspaper on a bimonthly basis.

Through the "Telegraphics Computer Terminals" set up at strategic locations on P.E.I. information was made available to the public on the dates for fishery festivals and locations of barbecue demonstrations.

(g) **June Seafood Days**

For the third year, the Maritime provinces joined in this seafood promotion which is designed to heighten consumer awareness of the wide variety of quality seafood products. The timing of the promotion is geared to increase consumption during the peak fishing and tourism seasons. During the month of June, various promotional activities took place under the "Seafood Forever" theme.

(i) **Launch**

To launch the program, a representative from each of the three Maritime Provinces was challenged to prepare the most tempting lobster recipe. The launch was held at the Culinary Institute in Charlottetown on June 1st.

Edouard Babineau, President of the P.E.I. Seafood Processors Association represented P.E.I. and won the trophy for the best Maritime lobster recipe. This event was attended by the public and media.

(ii) **Promotional Material**

In support of the promotion, recipe cards for consumers were produced. For the foodservice industry, quantity recipe cards were developed. Posters and recipes were also made available to seafood retailers.

(iii) **Wandlyn Inn Promotion**

A special promotion was carried out with the Maritime Wandlyn Inns to increase seafood consumption. The promotion consisted of a staff incentive prize and individual customer prizes. The Fisheries Departments provided buttons, placemats, tabletents and posters to promote the campaign.

The Maritime Wandlyn Inns increased the number of seafood portions ordered during the month of June by 182.5%, compared to the number of seafood portions sold in June, 1989. The Amherst Wandlyn Inn, in Nova Scotia, received recognition for selling the largest number of seafood portions.

A contest was held for the best lobby display. Six Inns participated and the winner was the Port Hawkesbury Wandlyn Inn in Nova Scotia.

(iv) **Wedding Sweepstakes**

A contest was carried out for those people who were getting married during the month of June. Three winners were selected and each received a seafood chest filled with cooking items.

(v) **Instore Demonstrations**

Demonstrations were carried out at several grocery stores in Charlottetown, Summerside and Montague.

(h) **Oyster Promotion**

In light of the problems encountered in marketing "Malpeque" oysters in 1990, a joint promotion was entered into with a seafood broker in Toronto, Ontario. Oyster knives were offered as premiums when consumers purchased oysters at the retail level.

(i) Committees

Staff held membership on the P.E.I. Joint Promotion Committee, the Heartsmart Committee and the P.E.I. Chef's Association.

STATISTICS AND MARKET INFORMATION

The Statistics section of this Division has, as a primary purpose, the function of acquiring and making available to the Department, and to the industry, detailed and timely statistical information on all segments of the fishery in this Province. During 1990, information was updated in such areas as fish landings and values, seafood production, fish processors and their products, seafood exports, and other related topics. As well, publications containing this type of information were prepared and released.

(a) Fish Price and Market Report

The compilation of this weekly report involved the collection of information on fish prices and market conditions and it was provided to the fishing industry through the Department's radio program and regional newspapers. This data was collected at the end of each week to provide a view of the previous week's prices. A representative number of processing plants on P.E.I. and a number of fishery representatives from other Atlantic Provinces were contacted for fish prices. Information on prices and market trends for the Eastern United States was received from the National Marine Service in Boston, Mass.

(b) Statistical Review

The Fisheries Statistical Review was compiled to present a historical overview of P.E.I.'s fishing industry. This document contains information on fish landings and values by species and by district, average prices received by P.E.I. fishermen, seafood products of each of the Atlantic Provinces, catches and values of fish from the other Maritime Provinces, exports by country of destination, numerous graphs, and other related fishery data. The Review has been updated and is available for public distribution.

(c) Tuna

This Division annually monitors and analyzes fishermen's catch records to provide information on which to base future management decisions.

The P.E.I. bluefin fishery grew from a total of five fish landed in 1967 to a peak of 1,041 fish landed in 1974. The allowable quota for P.E.I. from 1985 to 1987, was 660 fish. In 1988, the allowable quota for P.E.I. was reduced to 476 fish or 190 metric tonnes. In 1989, a new tuna allocation system was introduced based on quarterly allocations during the season. The quota for the Atlantic region for 1990 was 573 tonnes. P.E.I. caught 267 tuna or 67 metric tonnes in 1990 with 240 of this total caught in Nova Scotia and Newfoundland waters.

The "tended line" fishing method was introduced to this fishery in 1981 and today the majority of bluefin tuna are landed by this method. Rod and reel fishing continued from some ports by those fishermen who charter their fishing boats. In 1990, all tuna caught in P.E.I. waters were caught by the tended line method.

The following is a summary of the number of tuna landed by port for the past five years.

Port	1986	1987	1988	1989	1990
Sea Cow Pond	12	--	5	8	6
Tignish	34	33	98	38	20
North Rustico	--	--	--	--	--
Savage Harbour	1	--	--	--	--
Morell	--	2	--	--	--
Naufrage	4	4	--	--	--
North Lake	17	7	--	1	--
Annandale	--	1	--	1	--
Graham's Pond	--	--	--	1	--
Beach Point	1	--	--	10	1
Murray Harbour	5	--	--	1	--
Souris	--	--	--	3	--
TOTAL	74	47	103	63	27

Additional to the landings made by fishermen at P.E.I. ports, landings were made at Nova Scotia ports as follows: (1987 - 7; 1988 - 70; 1989 - 295). In 1990, 240 tuna were landed by P.E.I. fishermen at Nova Scotia and Newfoundland ports.

The bluefin tuna received a wide range of prices in 1990. P.E.I. fishermen received tuna prices ranging from $5 - $24.50 per pound.

The weeks showing the largest catch of bluefin tuna in 1990 on P.E.I. were September 9th - 15th, and September 16th - 22nd when 7 tuna were landed each week.. In 1989, the week of the largest catch was September 17th - 23rd when 19 tuna were landed.

(d) Snow Crab

This Division also monitors snow crab landings throughout the fishing season to provide information upon which to base management decisions.

The snow crab fishery is monitored by the Federal Department of Fisheries and Oceans with regard to quality and fishing seasons. This year, P.E.I. fishermen were allotted a quota of 500 tonnes to be caught within the Prince Edward Island snow crab zone. The season opened on April 21st and closed on May 14th when the quota was realized. Landings of 1.25 million lbs. represented a decrease of 33.0% over total landings in 1989. Fishermen received $.80 per pound for their snow crab this year, while fishermen received $1.00 - 1.25 per pound in 1989.

(e) Seafood Products Directory

The Seafood Products Directory was updated during the year. This publication provides information on the seafood products produced by P.E.I.'s Provincially licensed and Federally registered export plants and Provincially licensed non-export plants. It also includes: major shellfish shippers and their seafood products, a listing of trout processors, trout hatcheries, seafood agents/brokers, and seaplant companies. The directory also contains the harvesting seasons for all P.E.I. seafood species and a glossary indicating the scientific name of each species.

This publication is a buyer's guide for seafood produced in the Province and it is distributed upon request.

(f) Fishery Information Pamphlet

The Fishing and Aquaculture Industry of P.E.I. is a four page booklet which was completed in 1989 and provides general information on all aspects of the fishing and aquaculture industry of P.E.I. This publication contains details on all of P.E.I.'s major species, harbours, ports, vessels, processors and fishermen. This booklet, updated in 1990, is available in English and/or French, upon request.

(g) General

The Fishery Statistics pamphlet was reprinted to reflect annual up-to-date information. This pamphlet is used as a quick guide to research fishery statistical data, and is used in all information packages sent from the Department.

The Bluefin Tuna pamphlet was also reprinted to reflect current statistics. This pamphlet is distributed to tuna charter establishments, interested processors, school children and in general is used as a reference for numerous requests on this fishery.

RESOURCE MONITORING

The Resource Monitoring Program monitors fish landings at P.E.I. ports on an ongoing basis. Basic industrial characteristics of the catch, primarily individual lengths, are recorded in a structured manner and the information is used to (1) identify and monitor, quantitatively, long term trends in landed sizes; (2) assist in the formulation of Provincial positions on some key management issues; and (3) provide descriptive statistics with which to facilitate the development and/or expansion of the P.E.I. fishery.

The Resource Monitoring Program has been in existence since 1979, over which time the range of species and gear types covered by the program has grown. A total of 65,859 fish were measured during 1990. Table 1 summarizes data available for a selection of gear types covering the period from 1982 to 1990.

Resource data collected by the Resource Monitoring Program is available to Department staff for more directed studies of the resource as issues arise. It is also shared with the Federal Department of Fisheries and Oceans for scientific assessment purposes.

AVERAGE LANDED LENGTH (cm, total) FOR SELECTED FINFISH SPECIES AND GEAR TYPES AT PRINCE EDWARD ISLAND PORTS, 1982 - 1990.

SPECIES	GEAR TYPE	1982	1983	1984	1985	1986	1987	1988	1989	1990
Atlantic cod	Trawler, >65'	56.6	57.2		58.8	59.9				
	Trawler, <65'	51.3	54.7	51.6	51.0	49.2	48.2	44.7	46.0	49.9
	Dan/Scot seine	52.2	57.6	48.7	50.9	47.5	48.1	51.3	47.2	
	Pair seine	53.3	56.3	50.9	51.8	51.5	48.6	48.7	49.5	50.3
	Gillnet	60.1	60.4	61.4	54.9	58.2	54.4	54.5	54.4	56.0
	Longline	59.4	55.3	54.0	54.3	61.4	53.0		53.5	
	Handline	52.4	53.4	54.9	52.0	50.0	49.2			
White hake	Trawler, <65'	61.9	63.2	62.5	59.0	58.7	54.3	60.8		53.2
	Dan/Scot seine	64.7	67.4		60.6	61.5	57.4		62.9	
	Pair seine	65.2	62.9	62.5	61.1	63.6	55.9		60.1	57.4
	Gillnet	69.8	69.7	71.1	69.5	71.4	67.5	62.7	63.3	64.0
	Longline	67.4	71.8	68.5	73.5	71.8	68.0		62.4	
	Handline	67.1	68.6	60.3	66.2	68.4	62.0			
Redfish	Trawler, >65'	30.9	31.7	31.9	29.2	31.4	31.9	30.6	29.0	30.4
	Trawler, <65'								27.0	
American plaice	Trawler, <65'		37.1	36.8	35.6	37.3	34.6	33.8	34.2	34.9
	Dan/Scot seine			37.9	38.1	37.1	33.9	33.8	35.3	35.8
	Pair seine		34.7	35.4	36.0	37.1	36.2	36.4	35.0	34.8
	Gillnet								29.2	
Winter flounder	Trawler, <65'		30.8	29.5	29.6	28.2	28.3	32.3		29.4
	Dan/Scot seine									30.1
	Pair seine		30.3	30.5	29.7	29.0	29.0	30.5	27.6	29.1
Yellowtail	Pair seine							31.7		
	Gillnet								29.2	
Dogfish	Longline									80.0
Herring	Gillnet	29.1	30.1	28.9	28.7	29.3	28.6	27.7	30.3	31.5
Mackerel	Gillnet	38.6	33.5	33.2	33.6	34.0	35.2	36.4	40.1	40.0
	Pelagic seine									38.6

SPECIAL PROJECTS AND STUDIES

(a) A Herring and Mackerel Development Committee consisting of fishermen, processors, and representatives from the federal and provincial governments was established by the Department of Fisheries and Aquaculture to further develop the herring and mackerel fisheries. Low prices and limited markets rather than resource shortages have hindered the development of both the spring and fall herring fisheries, and the mackerel fishery. The use of large offshore purse seines to harvest small pelagics throughout the world has increased the supply and lowered the world prices for herring and mackerel. World prices for finished herring and mackerel products are often below P.E.I.'s cost of production and this makes it difficult for Island fishermen and processors to compete in world markets. The mandate of the Committee is to attempt to identify additional viable sales outlets, and facilitate the supply of products required by the marketplace.

(b) A Human Resources Planning Committee, chaired by staff assisted a consultant, Don Morrissey of Holland College, to assess the training needs in commercial fisheries and aquaculture for the next three to five years. Projected skill requirements by new entrants and those presently employed in the fishery were examined and training courses recommended to meet those projected training needs.

(c) A consultant was contracted by Government to determine the success of holding live lobster into the off-season using three holding systems. A communal, individual, and crate storage system was evaluated to determine which holding system was more economical. The individual storage system which minimized lobster mortality was deemed to be the most economic method of holding live lobster into the off-season. Staff of the Division assisted with this study.

(d) A number of internal economic analyses were prepared throughout the year. These studies examined a variety of economic issues important to the processing sector and fishing industry.

PROCESSING AND QUALITY DIVISION

Lloyd Murphy - Manager
Lynn A. Wall, Processing Technician
Floyd Gavin, Processing Technician
Edith Kerr, Processing Technician

The role of the Processing and Quality Division is to ensure the maintenance of a consistent level of high quality in fish products, to both safeguard the health of the consumer and to enhance the marketability of P.E.I. fish products.

Two full time and two seasonal personnel act as the resource center for implementing programs directed towards the Processing sector. The Division implements the P.E.I. Fish Inspection Act and Regulations, the Processors Technology Development Program, the Processors Quality Improvement Program and other related quality and development initiatives.

Activities undertaken during the twelve months ending December 31, 1990, were as follows:

Fish Inspection Act

The P.E.I. Department of Fisheries and Aquaculture is responsible for inspection on intra-provincial trade in fish and fish products while the Department of Fisheries and Oceans is responsible for inspection of products exported from the Province. The Prince Edward Island Fish Inspection Act and Regulations authorize the Province to implement regulations to ensure seafood is purchased, processed and marketed under sanitary conditions.

Buying Licenses were issued to each buyer when the equipment in their buying facility and transport vehicles were in compliance to regulations under the P.E.I. Fish Inspection Act.

Processing licenses were issued to all establishments engaged in the business of processing fish products for resale to the consumer. These establishments had to comply in all aspects to the requirements under the Fish Inspection Act and Regulations. Over a six month period in the summer over 600 inspections were carried out.

Each registered non-export facility was routinely inspected to determine if plant construction and sanitation regulations were in compliance. Throughout the summer Provincial officials monitored fish buying practices at all buying stations on the island and worked closely with Provincial Health and Department of Fisheries and Oceans officials on the inspection of processing facilities where fish products were prepared for sale to the public.

Licensing

The Licensing system for 1990 maintains improved quality compliance. Detailed recordings of all inspections and provisions for eligible buyers to receive licenses has been compiled. Licenses were issued according to species purchased and buying station locations. Inspection controls were maintained to assure that buyers achieved the quality standards for each species group. Licensing data is computerized and revised on a regular basis.

The Fish Buyers Licenses are broken down into four categories.

(1) Crustaceans
(2) Groundfish
(3) Pelagic
(4) Molluscs

Buyers can purchase only those licenses applicable to their operations.

Fish Peddler Permits were issued to those individuals who were involved in this aspect of the industry. Permits were required by those who participated in peddling fishery products throughout the Province.

TOTAL NUMBER OF BUYING LICENSES ISSUED IN 1990: 475

CRUSTACEAN LICENSES - 181
GROUNDFISH LICENSES - 97
PELAGIC LICENSES - 96
MOLLUSCS LICENSES - 101

TOTAL NUMBER OF PROCESSORS LICENSES ISSUED IN 1990: 76

TOTAL NUMBER OF PEDDLERS PERMITS ISSUED IN 1990: 14

There has been a slight decline in all license categories with the exception of Molluscs and Peddlers Permits. Mollusc license numbers remained the same while there was a slight increase in the number of Processors Licenses issued.

Processors Quality Improvement Program

The Processors Quality Program provides financial assistance to registered fish plants located on P.E.I. to upgrade their facilities to comply with Fish Inspection Regulations and make it easier for plant personnel to follow the schedule of Good Manufacturing Practices. The assistance provided is 50% of capital expenditures to a maximum of $10,000 per plant.

Eligible items can include structural changes such as; accommodation of locker rooms for staff, adequate lunch rooms, new washrooms, ceiling walls, drains, floors, cookroom or equipment required to improve quality processing.

The registered plants that participated in the Processors Quality Improvement Program in 1990 were as follows:

Atlantic Aqua Farms Inc.	Orwell
Atlantic Mussel Growers Coop	Murray River
Lobster Specialities	Summerside
Belle River Enterprises	Belle River
MacKinnon Lobster Pound	Charlottetown
Acadian Fishermens Coop Assoc.	Abrams Village
Atlantic Fish Specialities	Parkdale
South Shore Seafoods	Burton

Training

The processing industry in its continued efforts to ensure a safe wholesome product reaches the consumer, is developing In-plant Quality Management Programs (Q.M.P.) The Q.M.P. format was developed in cooperation with Department of Fisheries and Oceans. The role of the Federal Inspector will be to audit the Q.M.P. of each plant to ensure that it is being implemented in a proper manner. In order for a plant to obtain a 1991 processing registration, an approved Q.M.P. must be developed for that particular plant.

To assist processing plants in drawing up their Q.M.P. submissions, the Department utilized the services of Mr. Don Morrissey of Holland College. In conjunction with the quality control supervisor of each Plant, Mr. Morrissey studied each processing operation step by step and determined the critical control points (those points at which checks or tests will be carried out to evaluate compliance with regulatory requirements and if necessary, to correct any problems). Records of these checks are to be kept for review by government inspectors to determine if problems have been identified and dealt with. The procedure to be used for remedial action if a problem is found must be documented, and responsibility for such action assigned, as part of the Q.M.P. The program must also show how all necessary instruction will be communicated to the staff.

The Quality Management Program applies to four areas of fish processing; input materials; production conditions; products and personnel.

To date Mr. Morrissey has provided technical assistance to 18 plants throughout the Province. Further assistance is planned for the new year to assist plant personnel develop a record

keeping system for all products processed, with respect to volume of product processed, dates products were processed and, ingredients used in processing. In addition, in-plant training courses on implementing the Quality Management Program will be offered during the upcoming year.

In Plant Training

The development and implementation of training courses to be used in fish processing plants was continued in 1990.

A one day practical workshop was scheduled for the employees of Cabot Fishermens Co-op Association Limited to instruct personnel in the quality assessment of fresh fish for salting purposes.

The grading standards for trout growers were completed for those who wished to grade their products before resale. A seminar was scheduled to demonstrate handling and grading practices. This seminar included practical and theoretical applications.

"In-plant" training for trout growers was also implemented with technological information provided as well as hands on practical work. This training was provided on site at the operators establishments.

On-going plant training was provided to processors and buyers who requested this type of training. Frequent visits to processing establishments resulted in suggestions being made to quality control personnel in regard to good manufacturing practices and regulatory requirements. Short seminars were initiated where required.

FINANCIAL SERVICES AND SPECIAL PROJECTS BRANCH

Donald Judson, Director
Randy Francis, Administration Officer

The Financial Services and Special Projects Branch provides financial services to various firms and individuals involved in the commercial fishery. Special projects that impact on the P.E.I. fishery are prepared and implemented as needed. Current staff includes the Director and one administration officer. Casual employees are utilized as required.

Fish processors, moss harvesters, fishermen and service industries; e.g. boat builders, are assisted in a number of aspects related to financial matters that will lead to the development of their respective enterprises including applications for development grants.

Programs currently implemented include the Fishermen's Groundfish Program, Fleet Development Program, Redfish Harvesting Equipment Program, Equipment Demonstration Program, Technology Advancement Program and Longliner Program. The latter three programs were initiated on May 10, 1990. The Commercial Fishermen's Investment Incentive Program concluded April 1, 1987, but continued to accept certain applications until February 26, 1988. Annual claims will be processed until 1992. The Fishermen's Capital Investment Fund Program came to a close in 1989. Individual Fishermen's Funds are being maintained. Support is provided to the fish processing sector by assisting in preparation of financial projections for new developments.

The Branch annually prepares an Information Resource Management Plan. This plan received approval of the Computer Priorities Committee in March, 1990. The plan provides for development of a Departmental on-line Managers Information Access System, addition of the Department to a Government - wide Financial Information System and related training. This will provide managers with improved access to information to assist in policy and financial management and in meeting individual client needs.

The Director represents the Department on a number of intra-provincial and Federal/Provincial committees. The Director also provides support service to several committees resulting from the five year Canada/P.E.I. Co-operation Agreement on Fisheries Development. These include the coordinating committee, and subcommittees on management information, program review, public information and environmental issues.

Activities undertaken during the twelve months ending December 31, 1990 follow:

Nearshore Fleet Development Program

The Department continues to assess alternate methods of economically and safely landing our traditional share of fisheries resources on P.E.I. One such alternative is the construction of new closed deck vessels by fishermen who have the required licenses for nearshore vessels. A number of hatched decked vessels, owned by P.E.I. fishermen, are operating in the Gulf Region engaged in the groundfish and crab fisheries.

A policy respecting the level of financial assistance provides Island fishermen with a grant of 25% of the capital cost to a maximum grant of $20,000 for new near shore vessels over 25 gross registered tons.

Since the inception of the program in 1983, twenty-nine fishermen have received assistance in the construction of new hatched decked vessels. These twenty-nine vessel owners received a total of $898,374 towards the total capital cost of $5.33 million. Two fishermen received assistance in 1983/84; four in 1984/85; five in 1985/86; six in 1986/87; eight in 1987/88, three in 1988/89 and one in 1989/90. All but one of the vessels constructed to date are less than 45' length overall with the remaining one 55' length overall. Four are of wood construction, three of aluminum and twenty-two of fiberglass. Uncertainty in the crab and groundfish fisheries and new vessel replacement rules announced April 1, 1989, by Fisheries and Oceans, Canada, for groundfish vessels is having a negative impact on the Fleet Development Program. No applications were received for assistance during the 1990 calendar year. Of the twenty-nine new vessels constructed, six have left the P.E.I. fishery. One was lost at sea, one sold to a Nova Scotia fisherman and four have been sold to Newfoundland fishermen.

Decked Vessel Study

A nearshore (middle distance) fleet of approximately thirty-three boats has evolved during the period 1983 to 1990. These boats operate principally in the groundfish and crab fisheries. Many of the boat owners received assistance under the Nearshore Fleet Development Program. The need to have appropriate data and information useful in determining future development policy led the Department to undertake a profile study of closed deck fleet of vessels in the 41 - 48 foot length overall range.

All boat owners were contacted and the majority have participated in the study by providing valuable information as required. A report, based on study information, has been completed and will be made available to participating fishermen.

Fishermen's Groundfish Program

Concern over the decline in groundfish landings on P.E.I. led the Department to undertake a comprehensive study of the inshore groundfish fleet in 1988. Based on information contained in the study, it was determined that there was a need to assist inshore vessel owners to keep pace with technological changes in groundfish harvesting methods. The Fishermen's Groundfish Program, initiated April 6, 1988, provides conditional grant assistance to inshore vessel owners to purchase a number of capital items related to groundfish harvesting. This program complements the Fleet Development Program administered by the Department to construct new near-shore decked vessels. Redfish equipment was included as an eligible item during the period April 12, 1989 to June 30, 1990. Financial assistance, by way of conditional grants on eligible items, is provided to groundfish fishermen at a level of 35% of the capital cost to a maximum grant of $7,500 per fisherman.

During the period from April 6, 1988 to December 31, 1990, the Department approved 377 applications for assistance on 617 eligible items for a total of $690,864. For the twelve month period ended December 31, 1990, 66 applications were approved for assistance on 119 items for a total of $167,471. Following approval, some fishermen did not proceed and withdrew their applications, while others downscaled their projects by eliminating certain items or purchasing less expensive items.

Following is a summary of approved conditional grants by eligible item, total capital cost and total conditional grants approved from initiation of the program to December 31, 1990:

FISHERMEN'S GROUNDFISH PROGRAM
Summary - Approved Conditional Grants -
377 Applications
April 6, 1988 - Dec. 31, 1990

Eligible Items	No. of Items	Total Capital Cost ($)	Total Conditional Grants Approved ($)
Permanent Deck	1	2,000	700
Fishhold	-	-	-
Colour Sounder	180	377,447	131,196
Plotter	123	403,150	141,103
Longline Gear	68	135,215	47,325
Baiter	11	23,905	8,367
Bait Cutter	7	12,800	4,480
Longline Hauler	32	63,890	22,361
Other Longline Gear	9	8,895	3,113

Jigging Reels	2	12,600	4,410
Mobile Gear	33	148,713	52,050
Winch	51	289,914	101,470
Engine	20	380,100	30,000
Redfish Equipment	80	591,400	144,289
TOTAL	**617**	**2,450,029**	**690,864**

Two hundred and seventy-six fishermen who completed their projects on 375 items during the period from April 6, 1988 to December 31, 1990, received $390,652.62 in conditional grants. For the twelve month period ending December 31, 1990, 61 fishermen completed projects on 92 items and received $119,324.61 in conditional grants. Following is a summary of Conditional Grant payments made under the program to December 31, 1990.

FISHERMEN'S GROUNDFISH PROGRAM
Summary Conditional Grant Payments
276 Applications
April 6, 1988 - December 31, 1990

Items	No. of Items	Total Capital Cost-($)	Total Conditional Grants Paid ($)
Permanent Deck	-	-	-
Fishhold	-	-	-
Colour Sounder	138	261,560.97	92,129.09
Plotter	86	261,249.00	91,437.15
Longline Gear	30	37,770.21	13,219.54
Baiter	3	4,975.00	1,741.25
Bait Cutter	1	2,400.00	840.00
Longline Hauler	6	8,856.00	3,099.60
Other Longline Gear	1	575.00	201.25
Jigging Reels	1	9,240.00	3,234.00
Mobile Gear	25	91,035.75	31,862.51
Winch	31	157,907.25	55,267.55
Engine	5	97,462.00	7,500.00
Redfish Equipment	48	283,359.50	90,120.68
TOTAL	**375**	**1,216,390.68**	**390,652.62**

The average conditional grant to fishermen for the program to date is $1,415.41 for an average of 1.36 items. The average conditional grant per item is $1,041.74.

The Department is monitoring participation in the groundfish fishery by those that received conditional grants under the program. A very high percentage of fishermen operated in the

groundfish fishery in 1989 and 1990. Several who did not harvest groundfish returned unearned portions of their conditional grants.

Fishermen's Investment Incentive Program

Fishermen had requested, particularly during periods of high interest rates, preferential rates of interest for monies that they must invest directly into their fishing enterprises. The Department initiated the Investment Incentive Program which provided assistance in the form of up to a four percentage point interest reduction grant paid directly to the fisherman upon receipt from a recognized lending institution of itemized interest charges related to approved projects. Eligible projects included new or used capital asset purchases, acquisition of fishing enterprises and fishing privileges, repairs to capital items and working capital loans. The interest rebate assistance is paid on an approved loan maximum of $30,000 for a maximum of five years. More than one loan can make up the total aggregate of $30,000.

The program was initiated on May 24, 1983 and having reached its objective of assisting during periods of high interest rates, came to a close April 1, 1987. Applications for loan amounts actually drawn down from lending agencies prior to April 1, 1987 were accepted up to February 28, 1988. Approved applications on file continue to be maintained for interest rebate claims for up to five years or until the loan is paid out whichever is the lesser.

Over the life of the program, 779 applications were received. A total of 667 were approved on a loan base amount of $10.1 million.

Claims will continue to be received and processed until 1992 on outstanding active files. As at December 31, 1990, 207 files remained active. Following are details of claims paid:

Calendar Year	# Claims Paid	Total Paid ($)	Average Claim Payment ($)
1984	98	26,268.33	268.04
1985	223	92,610.17	415.29
1986	368	166,573.20	452.64
1987	399	194,021.90	486.27
1988	426	201,106.85	472.08
1989	358	184,742.76	516.04
1990	283	143,414.06	506.76
TOTAL	2,155	1,008,737.27	468.09

Fishermans Capital Investment Fund

The Department recognized that fishermen require large sums of money for fleet acquisitions, purchase of new or used vessels and equipment and upgrading or modernizing capital equipment and that appropriate equity, or down payments are required at time of purchase. The Fishermans Capital Investment Fund was designed to encourage fishermen to invest in savings to allow for the future capital equipment requirements of their fishing enterprises. The program was initiated on April 1, 1987, and due to a low level of acceptance by fishermen, came to a close on March 31/89. The program augmented a fishermen's annual $1,000 investment by $150.00. This assistance, accompanied by combined interest on the fishermen's investment and the additional investment by the Department, was designed to assist the fisherman to accumulate a fund for purchase of necessary capital items. The Program provided for bonafide commercial fishermen to invest in the financial institution of their choice, with the Department investing its portion in Provincial Deposit Receipts at the P.E.I. Department of Finance. Fishermen may cash their investments at any time and the portion used for eligible items will form the basis for the Department's contribution. The Department is reviewing the program to determine the feasibility of closing out the low number of individual funds.

Equipment Demonstration Program

The Equipment Demonstration Program was initiated May 10, 1990. The Department, in its interest in keeping P.E.I. fishermen up-to-date in technology, will assist fishermen to assess the merits of specific electronics, gear and/or equipment in a particular fishery. Items that are deemed to have potential application to the P.E.I. fishery are purchased or leased by the Department and are evaluated or demonstrated by interested fishermen. Equipment under approved projects is provided to fishermen by lease agreement. Two scanning sonars were purchased by the Department and leased to fishermen operating out of Fortune and Tignish. These units are being evaluated in the mackerel fishery for detection of mackerel schools below the surface of the water and to determine school size. Early success was reported when the units were installed in late summer. A full evaluation of these sonars will be undertaken in the 1991 mackerel fishery.

Technology Advancement Program

The Technology Advancement Program is designed to assist fishermen who have ideas that may be beneficial to the fishery. Assistance is provided to fishermen on projects of a new or innovative nature and can be from a broad range of interests including vessels, gear and equipment, electronics, harvesting techniques and stock assessment. The level of assistance is 50%

of the approved cost of individual projects to a maximum incentive of $10,000. Proposals are prepared by fishermen and forwarded to the Department for approval.

Several projects have been undertaken since initiation of the program on May 10, 1990. These were Scallop Bed Exploration in the area between Cable Head and East Point by seven participating scallop fishermen, Large Mesh Groundfish Gill Net Comparison in Annandale, Norwegian Seine Net Comparison Trial by two Souris fishermen, Dogfish Harvesting Tests in North Lake and Naufrage and a Stinson Clam and Ocean Quahaug Exploration project in the Eastern portion of the Northumberland Strait.

Reports of findings to date are being prepared on each of the projects approved under the program.

Longliner Program

The Province has access to a groundfish allocation in the Gulf of St. Lawrence for fish harvested by fixed gear methods. The longliner program was initiated on May 10, 1990 to assist P.E.I. fishermen in upgrading closed deck vessels with fixed gear machinery, equipment and overboard gear to enable greater access to middle distance groundfish stocks in the Gulf. Assistance is available on eligible items to equip a vessel for combination longline and gillnet fixed gear fisheries. The Department will provide an incentive of 50% of the eligible capital cost to a maximum conditional grant of $20,000. No applications were received in 1990, however, significant interest is being shown by several vessel owners in equipping for the 1991 fishing season. This is expected to enable these vessels to continue to fish groundfish using fixed gear when quota allocations for mobile gear are fully harvested by this class of vessel.

AQUACULTURE BRANCH

Irwin Judson, Director

The Aquaculture Branch is responsible for carrying out programs and services for Prince Edward Island aquaculturists, including mussel and trout growers and the oyster fishery, as well as growers of other species such as quahaugs, bay scallops, striped bass, eels, arctic char and salmon. The Branch also provides ongoing liaison with the Department of Fisheries and Oceans and other agencies in respect to activities in aquaculture development, management and research.

1990 was the third full year of operation of the Agreement for Commercial Aquaculture Development signed between the Department of Fisheries and Aquaculture and the federal Department of Fisheries and Oceans. This agreement has served as the framework for federal/provincial cooperative development and management of aquaculture.

In October 1989 a new federal/provincial funding agreement, the Cooperation Agreement on Fisheries Development, was negotiated with the Atlantic Canada Opportunities Agency and the Department of Fisheries and Oceans. The agreement contains a number of initiatives directed at development in the aquaculture industry. These initiatives include projects in oyster enhancement, aquaculture diagnostic services, mussel culture, finfish culture, clam culture, scallop culture, shellfish seed supply, shellfish depuration and other potential aquaculture species.

Under the terms of the Agreement the Department of Fisheries and Aquaculture and the federal Department of Fisheries and Oceans each deliver development programs in respect to oyster enhancement, while the Department of Fisheries and Oceans administers the Aquaculture Diagnostic Services project through the Atlantic Veterinary College. In the case of the remaining projects listed above, the federal and provincial departments share the cost, with the provincial department delivering the programs under the guidance of a joint management committee.

Of particular significance to the Aquaculture Branch in its mandate to carry out aquaculture development programs was the addition of two permanent staff in the Finfish Culture Division. This has greatly expanded the Department's expertise and capability in developing and delivering programs in the finfish culture sector.

The aquaculture industry in Prince Edward Island is young and dynamic and the potential for growth is substantial. Much of the speculative fever that attracted investors a few years ago has dissipated. Investors are more realistic in their

expectations, realizing that start up operations take a number of years to become economically productive and that there are high risks.

Worldwide aquaculture production is estimated at 14.5 million tons with China being the greatest producer by far at over 6.6 million tons. Although Canada shows great potential for aquaculture production, it does not appear on the list of the top 20 aquaculture producing nations. Nevertheless, with Canada's great natural resources and strong government support, it is estimated that by the year 2000 Canada will be producing 500 million to one billion dollars of product per year. This would put the nation among the top fifteen producers.

A more detailed report on the activities of the Aquaculture Branch follows.

ASSISTANCE PROGRAMS

The Aquaculture Branch is responsible for administering the following programs designed to financially assist in the development of the aquaculture industry.

(a) Mussel Production Enhancement Incentive Program

The Mussel Production Enhancement Incentive Program is designed to assist mussel growers, who have shown satisfactory results in their pilot projects, to expand. The program provides a 25% grant to a maximum assistance of $1,000 for specialized gear and equipment. In 1990 four growers participated for a total grant assistance of $3,843.

A total of $33,441 in grant assistance has been provided to thirty-seven growers since the program began in 1987.

(b) Finfish Production Enhancement Incentive Program

The Finfish Production Enhancement Incentive Program is designed to assist finfish growers who have demonstrated viability in pilot scale operations to expand. The program offers a 50% grant to a maximum assistance of $3,000 for buildings and equipment specifically for finfish culture. In 1990, two growers participated for total grant assistance of $6,000.

A total of $34,779 in grant assistance has been provided to twelve trout growers since the program began in 1987.

(c) Aquaculture Loan Program

The Aquaculture Loan Program is available to mussel and trout growers possessing the necessary leases and licenses as well as at least two years pilot-scale experience who wish to scale up to a commercial operation. Initiated in late 1983 to provide confidence in the aquaculture industry to the financial community, the program has supported loans through the Prince Edward Island Lending Authority in the amount of $640,282.

Loans totaling $86,050 were approved during 1990. The failure of one mussel operation covered under the program resulted in the payment of $24,842.73 to the P.E.I. Lending Authority by the Department during 1990.

On-site inspection by Department of Fisheries and Aquaculture and P.E.I. Lending Authority personnel is carried out jointly to monitor the progress of mussel and trout growers participating in the program.

(d) Aquaculture Crop Insurance Program

This program, initiated in 1989, is open to Prince Edward Island growers of mussels, oysters, trout and salmon who possess the necessary permits, licenses and leases and purchase aquaculture crop insurance from a recognized insurance company.

The assistance is in the form of a grant partially covering the premium cost paid by the grower for aquaculture crop insurance. The grant is paid at the declining rate: 30% of premium cost (maximum grant $3,000) in year one of the policy; 20% (maximum grant $2,000) in year two of the policy and 10% (maximum $1,000) in year three of the policy.

One mussel grower and one trout grower participated in the program since the program began in 1989 for total assistance of $3,918. There was no activity in this program in 1990.

(e) Jobs For Youth

The Department of Industry supplied twelve students to aquaculture for ten weeks during the summer through their Provincial Youth Development Program. The Aquaculture Branch was instrumental in supplying eight students to mussel growers and four to finfish growers for the purpose of gaining job experience.

(f) Aquaculture Technology Development Projects

The purpose of the Aquaculture Technology Development Program is to provide an incentive for private aquaculture operations to develop or adopt new techniques or equipment, or to

diversify into new approved species, in order to expand production, reduce production costs or otherwise increase earnings through more efficient production as well as improve the environmental acceptability of aquaculture. The Department may provide a financial incentive of 75% of eligible expenditures to a maximum assistance of $20,000 for projects fulfilling the purpose of the program.

The Finfish Division entertained nine applications throughout the year. Assistance under the program has supported essential development in the areas of broodstock development, on-farm technology and on-farm management operation. Following is a summary of finfish projects:

i) The establishment of a quarantine facility was assisted thereby enabling non-certified fish to be safely introduced for the purpose of establishing their potential as broodstock for culture purposes. In this case, Arctic char was the target species.

ii) The performance evaluation of three strains of Atlantic salmon was undertaken, one being a native Island strain, and the other two being salmon culture industry standards. This is the first step in determining if PEI stocks can be effectively employed in the salmon culture industry. This work is being undertaken in a freshwater facility.

iii) The performance evaluation of three strains of Atlantic salmon was undertaken, two being native Island strains, and the other one being a salmon culture industry standard. This project was undertaken in a facility supplied with seawater. However, due to the seawater source going anoxic in the heat of July at this particular location, this project was postponed until safeguards can be installed to prevent a recurrence.

iv) A project was undertaken to provide an evaluation of four strains of speckled trout, three being native Island strains, and the other being an industry standard.

v) The installation of heat pump and heat exchange equipment was assisted enabling hatchery water to be heated, resulting in cost reduction and efficient production of fingerlings, both for local and export sales to the grow-out industry.

vi) A project assisted in the installation of automated equipment for sorting, grading and counting fish eggs. The sale of certified eggs of speckled and rainbow trout, Arctic char and Atlantic salmon form a significant portion of the industry's export sales. All fish eggs, before selling must be sorted to remove any dead eggs, counted accurately and graded for size which can be a condition indicator of the

health of the broodstock. Automated equipment can sort, grade and count in the order of 150,000 to 200,000 eggs per hour.

vii) An evaluation of the impact of photoperiod on fish growth rates and feed conversion was carried out by adjusting and controlling the length of time of lighting to fish normally subjected to the reduced hours of wintertime daylight.

viii) Assistance was provided for the development of a computer program designed to be a management tool in the day to day operation of a fish farm. For example, if the program is told the size of the fish and the water temperature, it will state the required volume of water needed, the flow rate requirement, the oxygen demand, feed requirement and pellet size, and ammonia production. Also calculated are anticipated feed conversion and growth rate. Therefore, the program will predict the parameter requirements at any specified time in the future. It enables more accurate production scheduling, feed ordering times, tank and flow requirements and other related parameters.

ix) An initial trial was launched in developing eel culture on PEI. Attempts are being made to culture commercially caught eels on a pelleted feed to determine the feasibility of growing these eels to larger sizes and at the same time producing "silver eels" which are eels that have reached maturity, are high in fat content and, fetch a premium dollar in the European smoked eel market.

As of December 31, 1990, one grower was holding approximately 1,000 lbs. of eels on surface water with minimal losses. Eels were stocked on surface water and ground water at two densities to study behavior and potential holding problems over the winter months. Lipid and moisture analysis will be performed to determine the effect of cold water temperature and long term winter holding on flesh quality. A sample of eels will be raised in seawater and surface water when temperatures increase in June 1991.

In the mussel component of the program, six projects have received assistance for the following projects.

x) Improvements in in-plant tank holding of mussels and the advancement of mussel grading and inspection table technology;

xi) Mechanization of small scale mussel dory loading and unloading at shorelines where dock and winch facilities are not available;

xii) Trials in the use of auger-type anchors, screwed into the bottom beneath mussel farms, as alternative anchorage to the currently used sand bags;

xiii) Mechanization of stripping mussels from the socks at time of harvest;

xiv) The assessment of new methods of longline sinking using concrete blocks and hydraulic equipment in place of sand bags;

xv) The design of screening equipment to remove shell from mussel mud for use in oyster enhancement programs.

Other projects which received assistance through the Aquaculture Technology Development program included:

(xvi) The trial holding of commercial quantities of bay scallops in indoor tanks for winter marketing; most of the scallops died by mid-February, although it is uncertain whether the cause of mortality was poor handling prior to storage, or the storage itself.

xvii) The assessment of an in-water oyster spat grader which may be useful for shellfish operators in grading for size hatchery oyster and quahaug seed as well as wild-caught oyster spat.

xviii) Trials to improve methods of growing oyster seed and comparing the use of hatchery seed with the use of wild-caught spat.

xix) The use of under-ice rack systems for the holding of oysters into the winter to evaluate the potential of lengthening the traditional market season, and increasing the demand and price for Malpeque Brand oysters.

In summary, by the end of 1990, the Aquaculture Technology Development Program had assisted nineteen projects, with a total project value of $326,522 and forecast program contributions of $204,595.

FINFISH DIVISION

Edgar Mason, Finfish Manager
Richard Gallant, Finfish Technician

The goal of the Finfish Division is to concentrate efforts in assisting the finfish industry to establish the necessary on farm technologies, and broodstock programs essential for the healthy growth and development of this young industry. Much effort has been focused to develop new ideas to be incorporated into a Finfish Strategy for PEI. A working document of a Finfish Broodstock Plan is one aspect of this strategy. Several farms have participated through special projects or the Aquaculture Technology Development Program to establish new technologies and equipment and enhance productivity.

The total of on-Island and export sales of fish eggs and fingerlings, to be grown to produce food fish, and the sales of meat fish for the table market, has yet to exceed annual sales of one million dollars. It is generally believed both by the finfish culture industry and by government that production can be increased several fold over the next decade. Growth is dependent upon streamlining production and diversifying into the commercial production of several species.

Three new operations were established in 1990 - two fee fish operations and one small growout site. Although International Marine Fisheries Ltd. was placed into receivership in February, Island meat fish production was expected to be equal to that of 1989, with expansion of a number of grow out sites and increased sales by the Island Cultured Fish Coop Ltd. Hatchery commitment to rainbow trout exports has decreased in 1990 but operators have shown commitments to development of broodstock for production of speckled trout, Arctic char and Atlantic salmon. By the year's close the finfish industry was comprised of four certified hatcheries, 16 grow out sites and six sites operating fee-fish facilities.

Not only are the sales of cultured fish contributing greatly to the Island economy, but in the majority of installations, fish are grown year round, resulting in the creation of full time jobs, which are an attractive stimulus to an economy so heavily dependent on seasonal employment. Approximately forty persons are presently employed, either full or part time, in the industry. Also, the development of new technology found to work well in the industry may result in stimulating spin-off business ventures. Presently, one PEI firm is manufacturing tanks and filtration equipment for fish farming and exporting much of its sales. A second firm is demonstrating the opportunity for P.E.I. to develop and export computer software packages applicable to farm management.

Following is a summary of the activities of the Division and the finfish industry for the year.

Field Activities

Considerable effort has been put forth to provide finfish growers with technical assistance to maintain good water quality at their sites. Assistance has been provided to evaluate new potential sites, study technical or biological problems affecting existing sites and design and monitor Aquaculture Technology Development Projects and Special Projects.

Technical assistance was provided to finfish culturists attempting to develop stocks of striped bass and eels for aquaculture.

Several Island estuaries were surveyed during late summer in cooperation with the mussel culture program to monitor the effects of record high temperatures on water quality. The survey was prompted by abnormally high water temperatures in several mussel and finfish culture areas, where for an eight week period in the summer water temperatures were some two to five degrees above normal.

Collaborative work with the Cardigan Salmonid Enhancement Center included projects on fertilization of reconditioned salmon kelts with cryopreserved sperm, transport of salmon sperm in an oxygen enriched medium and assistance in the collection and spawning of speckled trout and Atlantic Salmon for broodstock development in Island hatcheries.

Special Projects

The Department has engaged in several projects during the year which have direct relevance and impact on the finfish industry. The projects were directed and managed by the extension personnel and staffed mostly with two summer students and one summer contract person. These summer staff gained a variety of experience including feeding and caring for fish, collecting and analyzing water samples and data in the effluent monitoring program, collecting growth data on fish involved in feed studies and periodically weighing and sorting Irish moss. The projects were, with the exception of one, carried out directly on the fish farms with significant input and assistance from the operators. Projects included:

1) The use of moist feed was evaluated in comparison with dry feed formulations in the production of fish being reared at 8^{o}C on ground water and on fish reared in surface water ranging from 10 to 16^{o}C. Although the data has yet to be analyzed statistically, it appears that the moist feed

resulted in faster growth rates at the lower temperature but that there was no difference in growth rates at higher temperatures.

Comparative work using moist and dry feeds is presently underway at typical winter surface water temperatures of 1 to 4°C.

2) A project was undertaken to monitor the effluent from fish farms. In some provinces, guidelines have been set to limit the amount and type of industry effluent that can be safely returned to the environment. Such guidelines have not been formulated for PEI to date. In consultation with the industry and Department of the Environment representatives, it was decided to initiate a study to evaluate the parameters of effluent from typical land based fish farms. Data has been collected mostly on two farms, with the data base to be enlarged during the upcoming summer. Data on the performance of effluent settling ponds has also been collected. Results have yet to be statistically analyzed, but preliminary data indicate that land based finfish farming has no detrimental effect on our environment.

3) The Division participated in a study on storage quality of farmed trout. The Island Cultured Fish Co-op Ltd. undertook a project to evaluate the impact of reduced feeding of fish, for various intervals prior to slaughter, on the storage quality of the fresh product. The quality analysis was conducted by the Food Technology Centre.

(4) A study was undertaken to evaluate the Basin Head strain of Irish Moss as a potential aquaculture species by growing the moss in wire cages over a period from late June until mid November. Duplicate cages were anchored each at the low tide level, one meter below low tide and two meters below low tide. The biomass of the moss held in cages at low tide level doubled by September. This increase in weight was significantly greater than in the other cages. September was shown to be the last month which supported moss growth. Moss in all cages lost weight in the October and November sampling. The negative growth experienced in October and November is natural in response to diminishing sunlight and nutrient availability. Fouling of the cages by sea lettuce and algae may have reduced growth rates in all the cages over the summer months. Further work will be conducted to assess this strain of moss for aquaculture production.

5) Striped bass is indigenous to Gulf waters and grows well in warm seawater and freshwater. It is believed that this fish may be a potential species for estuarine cage culture during warmer months and for land based ground water culture during the colder months. One Island finfish grower has

expressed interest in capturing and maintaining stocks of striped bass for aquaculture purposes. The grower was successful in obtaining a scientific collection permit from the Department of Fisheries and Oceans, Canada for the Midgell, Morell and Hillsborough River systems to operate a capelin box trap for the purpose of capturing striped bass. No fish were trapped by December 31, 1990. However, inquiries to eel fishermen and gaspereau fishermen have reported sightings of striped bass during the fall and early spring. One individual has confirmed striped bass being in the Hillsborough River this fall where three fish weighing up to 15 lbs. were trapped by by-catch in eel fyke nets.

A future collection permit will be requested to collect striped bass in late winter and early spring as they migrate to seawater to spawn.

Workshops

In September, the Department assisted a group of Island hatchery operators and the executive of the Finfish Growers Association to attend a striped bass workshop at the Biological Station in St. Andrews, N.B. The workshop was held in an effort to update scientists, government personnel and potential aquaculturists on the history of striped bass in Canada and the United States and the present status of striped bass culture for restocking programs and food-fish. Following the workshop, the group toured a modern salmon hatchery (Kennebec Aquaculture) in Solon, Maine and a government hatchery (Green Lake National Fish Hatchery) in Ellsworth, Maine.

On November 3, a workshop at the Atlantic Veterinary College was sponsored by the Department to provide hatchery operators and veterinary students on P.E.I. with technical information and hands on experience for the induction of triploidy in salmonids. Dr. Tillman Benfey, University of New Brunswick addressed fifteen participants on the benefits of triploid salmonids, the procedures for their induction and some of the drawbacks associated with current techniques. The afternoon was devoted to hands-on experience which included a demonstration of gamete collection from brook trout, induction of triploidy by thermal shock and pressure shock and a discussion of the two techniques. Off-spring of fertilized eggs are being held at the Atlantic Veterinary College.

SHELLFISH DIVISION

Vacant, Shellfish Manager
Brian Gillis, Shellfish Technician
Paul Burleigh, Shellfish Technician
Matt Smith, Shellfish Technician

The Shellfish Division is responsible for carrying out a broad range of programs and services for the development of the molluscan shellfish resources. Prince Edward Island has benefited greatly from the establishment of commercial mussel farms, the enhancement of the public oyster fishery, the management of the clam and quahaug fisheries to take advantage of relay opportunities, and the investigation of opportunities for the culture of other species.

The combined value of the landings of mussels, oysters, quahaugs, scallops, bar clams and soft shell clams exceeds eleven million dollars and provides a major source of income for some two thousand individuals.

A detailed report on the activities of the Shellfish Division follows.

OYSTERS

Oyster shipments were down slightly from the 1989 level. The marketplace exhibited stronger resistance to the less strict grading and quality control practices of Island oyster shippers. Compounding this resistance was the imposition by the government of Quebec of a zero tolerance for the mud worm common in oyster beds. Both the P.E.I. oyster shippers and the Department of Fisheries and Aquaculture expended a good deal of effort in working to diminish the incidence of these harmless worms in the pack, and to persuade Quebec to adopt more reasonable tolerance levels.

The company charter for Malpeque Oyster Cultures Incorporated was surrendered in August 1990. The land and buildings were sold through public tender for a price of $30,111.11.

Oyster Enhancement

The oyster enhancement program is a joint project of the Department of Fisheries and Aquaculture, the Department of Fisheries and Oceans and the Prince Edward Island Shellfish Association with funding for the program provided through the Canada - P.E.I. Cooperation Agreement on Fisheries Development.

The aim of the program is to increase the Island's production of oysters which, in turn, increases the financial returns to the harvesters, dealers and the provincial economy. Efforts to collect oyster spat by use of collector material, to relay oysters from areas of heavy concentration to better growing areas, and to cultivate shellbeds to improve the conditions for natural spat collection were continued during 1990.

To assist in implementing this Program, the P.E.I. Department of Health and Social Services Job Creation Program provided a number of employees. A total 670 weeks of employment was provided for seventy-one social assistance workers in 1990. The job creation employees were supervised by a staff of four managers funded through grants from the P.E.I. Department of Fisheries and Aquaculture and the Department of Fisheries and Oceans, administered by the P.E.I. Shellfish Association. Travel expenses and material purchases needed to equip the workers were also jointly funded by the two levels of government.

During 1990, 66,000 mesh bags were prepared and filled with oyster shell which acts as a collector for the free swimming oyster larva to "set on". These collector bags were suspended on either fencing or longlines. The fencing material (small diameter, 15 foot poles) was cut on private land in West St. Peters and trucked to sites in East River, Smelt Creek and Paugh's Creek.

Beginning in mid-September, the collector bags were lifted from the fencing and longlines, opened, and transported to a number of good grow-out rivers such as East River, West River, Bideford River, Cascumpec Bay, Grand River and Foxley River. The new oysters had, by this time, grown on the shell collectors to about 18 to 24 mm (the size of a dime to a quarter). These young oysters should grow to market size (75 mm) within five years providing added income valued at one to three million dollars. Over 4,000 five peck boxes of spat were collected this year to seed-out new areas and enhance heavily fished grounds.

Forty-seven leaseholders fished 2,460 five peck boxes of oysters in a relay project in Pisquid during the last two weeks of April. These oysters are thin lipped, poor shaped and severely over-crowded; however, their shape will improve to produce good market oysters when placed on good growing bottom. The harvest area has a history of good spat settlement and this provides the leaseholder with an excellent source of natural seed and broodstock.

A total of 1,273 boxes of oysters were relayed to better growing bottom at selected areas within East River, Bedeque Bay and Cascumpec Bay, and should be ready to market within three years. It is estimated that the market value of these oysters will have reached approximately $250,000 at that time.

RESULTS OF 1990 SPAT COLLECTION AND OYSTER RELAY ACTIVITIES

	SPAT*	RELAYED OYSTER*
West River	389	200
Ferguson Creek		22
Fullerton's Marsh	502	253
Proctor's Cove	175	
Tracadie Bay	53	
Corran Ban		18
Rustico Bay	38	
Cascumpec Bay	2,693	
Mill River	145	
Grand River	192	
Lot 16 River	100	
Bideford River	718	200
Wilmot River		580
	5,005	1,273

*Quantities are given as five-peck oyster boxes.

MUSSEL CULTURE

The value of the cultured mussel production continued to be second only to lobster in 1990, a distinction it achieved in 1989. There are 255 leases and conditional permits comprising a total area of 7,259 acres. It is generally believed that further increases in cultured mussel production will come from expansion on existing leases, with little further availability of new high quality, deep sheltered growing areas.

The cultured mussel industry continued to expand its production with preliminary statistics indicating production was up 11% over 1989, reaching six million pounds. During the year a new firm undertook secondary processing of mussels in Beach Point. The firm is producing frozen mussels in the shell for consumption in the same manner as fresh mussels.

In 1990 the major technical problem in the cultured mussel industry was the increasing concern over the performance of different seed stocks in different growing areas. A similar problem was reported in respect to in-plant tank storage of certain mussel stocks; however, it is not clear yet whether it is indeed the same problem or if it is a problem within the plant. A seed assessment survey was conducted by the Branch as a first step toward gaining an understanding of the issue. All growers were contacted and their observations and opinions recorded. Further research on this problem is necessary.

In cooperation with the Cultured Mussel Growers Association, a seminar on the effect of the Goods and Service Tax was organized in December.

Mussel Monitoring Program

The Mussel Monitoring Program continued to be an integral part of the Department's service to the mussel industry. A permanent nine month position has been created in the Aquaculture Branch to provide continuity for this popular program. The program provided seventy-seven mussel growers in major mussel producing areas with information on water temperatures, salinity, mussel meat condition index, size and concentration of mussel larvae.

As a result of the mussel toxin crisis of 1987-88 the mussel monitoring program has been expanded to provide mussel growers with essential information on estimated numbers of phytoplankton potentially capable of causing toxins in mussel meats.

The phytoplankton of significance observed in 1990 include:

(i) Nitzschia pungens - diatom linked to A.S.P. (Amnesic Shellfish Poisoning) toxin "domoic acid"

(ii) Alexandrium - dinoflagellate responsible for P.S.P. (Paralytic Shellfish Poisoning)

(iii) Dinophysis - dinoflagellate responsible for D.S.P. (Diarrhetic Shellfish Poisoning).

Although these phytoplankton were observed this year in relatively high numbers in some mussel growing areas the toxin level in mussel meat was very low and no shellfish growing areas were closed to harvesting because of shellfish toxicity.

A recurring problem for mussel growers is mussel die-off. This has become a serious problem and work is being done to find ways to minimize this occurrence. There is some evidence to show

certain seed stocks are inferior to others. It is expected that research will be carried out to compare the performance of mussel seed stocks in different mussel growing areas.

QUAHAUG CULTURE

Hatchery Operation

Again in 1990 arrangements were made to produce quahaug seed at the Ellerslie Fisheries Station in conjunction with the Holland College Aquaculture Technology Course. A department technician was responsible for seed production. Approximately 200,000 quahaugs (2.5-13mm) and 200,000 quahaugs (1.5-4mm) were produced of which 375,000 went to participants in the Quahaug Culture Incentive Program and 26,000 went to departmental plots. Research suggests that selective breeding can result in faster growing strains of shellfish; consequently over the last two years an effort has been made to select fast growing seed quahaugs to use as broodstock in future years. The larvae produced by broodstock from the 1988 brood out performed larvae produced by wild broodstock.

Aside from the production of quahaugs and bay scallops, some tests were carried out on setting oysters with good success experienced using shell chips and P.V.C. sheets as collectors.

In the fall quahaug, oyster and bar clam broodstock were brought into the hatchery. Quahaug seed production will be carried out again, using fast growing quahaugs selected from 1988 and 1989 seed and fast growing quahaugs from the wild. Aside from quahaug seed production an oyster setting technique and nursery technique will be evaluated and bar clam growth in various nursery systems will be tested.

Crabs and moon snails have been brought into the hatchery so their effect on quahaugs can be studied under various environmental conditions.

Public Quahaug Fishery Enhancement

During the summer various techniques were used to collect information on what is happening in the wild fishery and what can be done to improve quahaug seed survival in the wild.

A project was undertaken to determine the size/age relationship of quahaugs on P.E.I. Three hundred and twenty-nine quahaug shells from six sites were sectioned and prepared for age determination.

Experimental plots were set up, at three sites, to try and find ways of increasing the survival of seed quahaugs spread on the bottom. Quahaug seed (1.5-4mm) were spread on plots which

had no protection, plots with a layer of pea gravel on top and plots that had a 1/4" net covering. While gravel and to a lesser extent net increased the survival in the plots, the survival in all plots was very poor indicating that larger seed are necessary to make this type of field planting feasible.

Several similar trays were put out in Enmore to try and determine the number of quahaug larvae setting and growing to 1 mm in size. No live quahaugs were found in any of the trays when inspected in the fall. Results from the small scale recruitment study point to the need for a more wide-ranging effort if useful enhancement information is to be gained.

Quahaug Culture Incentive Program

This was the second full year of operation for most participants in the Quahaug Culture Incentive Program.

Ten people participated in the Quahaug Culture Incentive Program with five people from 1989 dropping out and two new people becoming involved.

In the spring, a parasite was discovered in the quahaug broodstock and a concern over this parasite delayed the distribution of quahaug seed. In late June, information surfaced which suggested the parasite should not affect wild shellfish stocks and consequently the Introductions and Transfers Committee gave permission to release the seed. The overall results this summer were adversely affected by the parasite investigation which caused a delay in seed distribution and resulted in 4 - 6 weeks of the growing season being lost. Aside from the shorter growing season, some sites experienced less than optimum growth because of competition from large numbers of clams in the cages.

The ten growers experienced varying degrees of success. Recovery rates ranged between 3% and 100%; with average recovery being 66% for large seed and 24.5% for small seed. The low recovery rate at some sites can be attributed to predation, unexplained mortality and washout.

Predators were observed at three sites. The main predators found in cages were starfish and mud crabs. At the three sites where predators were present, mortalities ranged from 8-50 percent. In some cases predators entered cages because they were not sealed properly or the net got ripped; in some cases they may have been introduced in the sand that was put in the cage; and in some cases the method of entry is unknown.

In cages where predators, or evidence of predators did not exist, the causes of mortality are unknown. Mortalities caused by unknown factors account for only 0-5 percent of losses.

Quahaug Culture Workshop

A one day quahaug culture workshop was held on January 23, 1990. The workshop was geared to those involved in the Quahaug Culture Incentive Program in 1989, and to those contemplating quahaug culture for the first time. There were sessions on all aspects of quahaug culture including a presentation by S.F.T. Ventures on commercial operations, and a session on the culture results achieved by P.E.I. growers in 1989, including techniques that could be improved in 1990. Approximately twenty-five people attended with several new people showing interest in quahaug culture.

BAY SCALLOP CULTURE

Two bay scallop spawns were carried out and three million scallops were produced. Because of concern over a parasite present in scallops, the Introductions and Transfers Committee decided that bay scallops should not be released on P.E.I. in 1990. This necessitated the destruction of all the scallops except 60,000 which went to Nova Scotia and 1,500 which were kept at Ellerslie to supply the Atlantic Veterinary College with animals for research on the aforementioned parasite. These scallops were kept in hatchery quarantine with all effluent water being treated by a chlorination system.

SHELLFISH DEPURATION

Quahaug Relay

In 1990 the Department entered into an agreement with the Prince Edward Island Shellfish Association for a trial relay of quahaugs from contaminated water for natural cleansing and marketing.

The relay was conducted during July to September. Approximately thirty-five pickers participated and landed nearly 97 tonnes (213,000 lbs.) of quahaugs. Three shellfish buyers were involved.

Shellfish Sanitation Workshop

A major shellfish sanitation workshop was held in March. It was well attended by representatives of most major shellfish growers and dealers, as well as academic and research agencies. Speakers included a range of internationally known shellfish experts.

APPENDIX 1
DEPARTMENT OF FISHERIES
P.E.I. LOBSTER LANDINGS AND VALUES
(1920 - 1990)

V = Values in ($000's)
Q = Quantity in millions lbs.

	Q	V		Q	V
1920	8.3	703.9	1950	9.9	1,963.0
1921	6.4	255.3	1951	8.3	1,702.0
1922	8.8	651.4	1952	8.4	1,849.0
1923	9.7	878.8	1953	7.0	1,997.0
1924	6.5	564.8	1954	7.4	1,977.0
1925	7.9	661.1	1955	8.3	2,324.0
1926	6.6	601.8	1956	9.7	2,725.8
1927	6.3	617.1	1957	8.5	2,456.3
1928	6.6	553.1	1958	8.0	2,510.2
1929	7.4	621.5	1959	8.4	2,843.2
AVG. 20's	7.5	610.9	AVG. 50's	8.3	2,236.8
1930	8.1	539.7	1960	10.1	3,212.3
1931	9.4	553.7	1961	9.5	3,055.0
1932	11.5	551.7	1962	8.7	3,218.9
1933	9.2	396.2	1963	7.4	3,155.8
1934	7.7	536.0	1964	7.8	4,210.8
1935	6.4	467.8	1965	8.8	5,176.6
1936	6.0	544.4	1966	7.9	3,925.7
1937	5.8	524.8	1967	9.0	5,228.8
1938	7.1	458.8	1968	8.7	5,328.9
1939	7.0	464.4	1969	8.2	5,375.8
AVG. 30's	7.8	503.8	AVG. 60's	8.6	4,188.9
1940	5.6	353.9	1970	8.7	6,231.2
1941	6.0	469.2	1971	8.2	5,860.6
1942	6.4	694.8	1972	7.3	6,360.8
1943	6.0	999.9	1973	7.7	7,503.2
1944	6.6	1,149.7	1974	6.2	6,347.0
1945	8.1	1,503.6	1975	8.6	8,135.5
1946	7.9	1,982.7	1976	8.5	8,510.5
1947	6.2	1,070.0	1977	9.1	10,012.0
1948	6.5	1,411.9	1978	11.1	16,648.6
1949	6.8	1,388.4	1979	11.8	18,073.9
AVG. 40's	6.6	1,102.4	AVG. 70's	8.7	9,368.3
1980	11.8	15,458.0	1986	18.3	44,494.2
1981	11.9	18,519.0	1987	18.9	49,532.0
1982	12.2	22,599.0	1988	22.0	56,128.9
1983	15.5	29,056.1	1989	21.3	46,058.0
1984	13.6	23,137.0	AVG.80's	16.1	33,857.5
1985	15.0	33,591.0	1990	22.5	40,348.0

APPENDIX 2

GENERAL FISHERIES FACTS 1990

P.E.I. Fishermen and Helpers	5,539
Bonafide fishermen *	1,383
Commercial fishermen **	4,156
Vessels - (<55')	1,616
(>55')	6
Licences by Species:	
Groundfish	925
Herring	867
Mackerel	821
Tuna	361
Scallops	400
Lobster	1,306
Eels	261
Silversides	36
Smelts	403
Snow Crab	16
Oysters	1,098
No. of employees in processing plants (approx. maximum in peak season)	2,400
No. of provincially licenced and federally registered export plants (not including buying stations)	40
No. of provincially licenced non-export plants	22
No. of major shellfish shippers	12
No. of trout hatcheries	4
No. of trout processors	4
No. of seaplant companies	4

* Bonafide Fisherman - is a fisherman who is registered as a commercial fisherman, and is the holder of a limited fishery licence, subject to meeting one of the following three conditions:

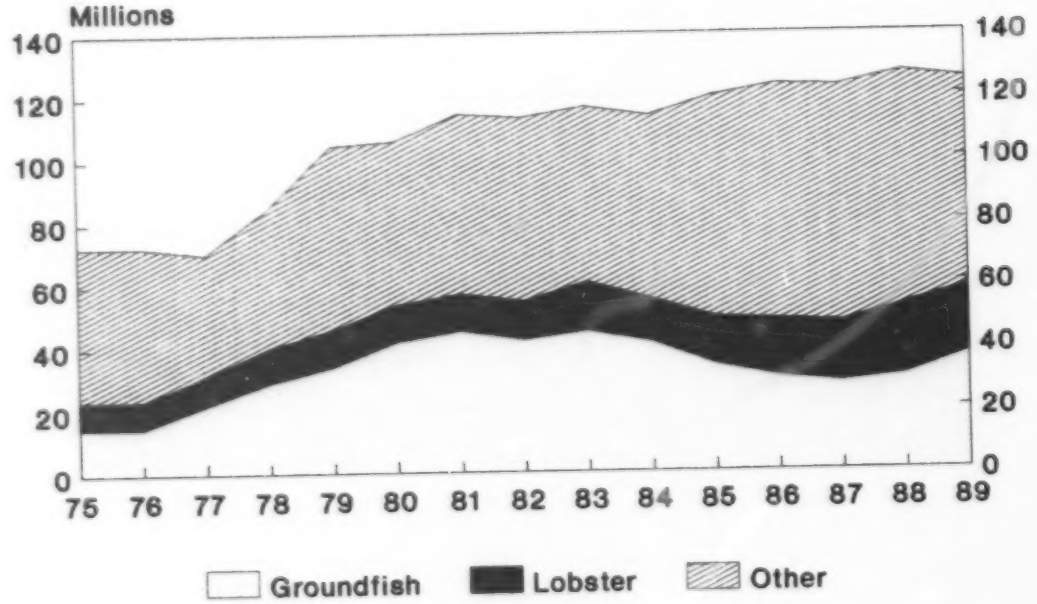
(1) is the holder of a Category A lobster fishing licence.

(2) showed proof of 75 percent or more of his income from fishing using his own boat and/or equipment except where this boat and/or equipment is not required.

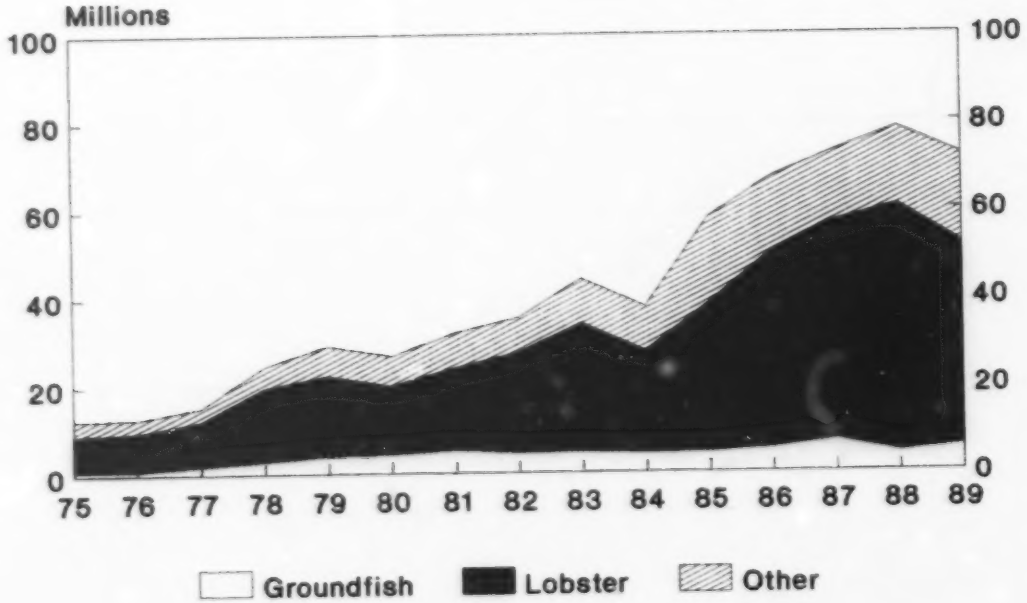
(3) showed proof of sales of fish in 1988, with a landed value in excess of $15,000 using his own boat and/or equipment except where this boat and/or equipment is not required.

** Commercial Fisherman - is a registered fisherman who does not meet the requirements of a bonafide fisherman.

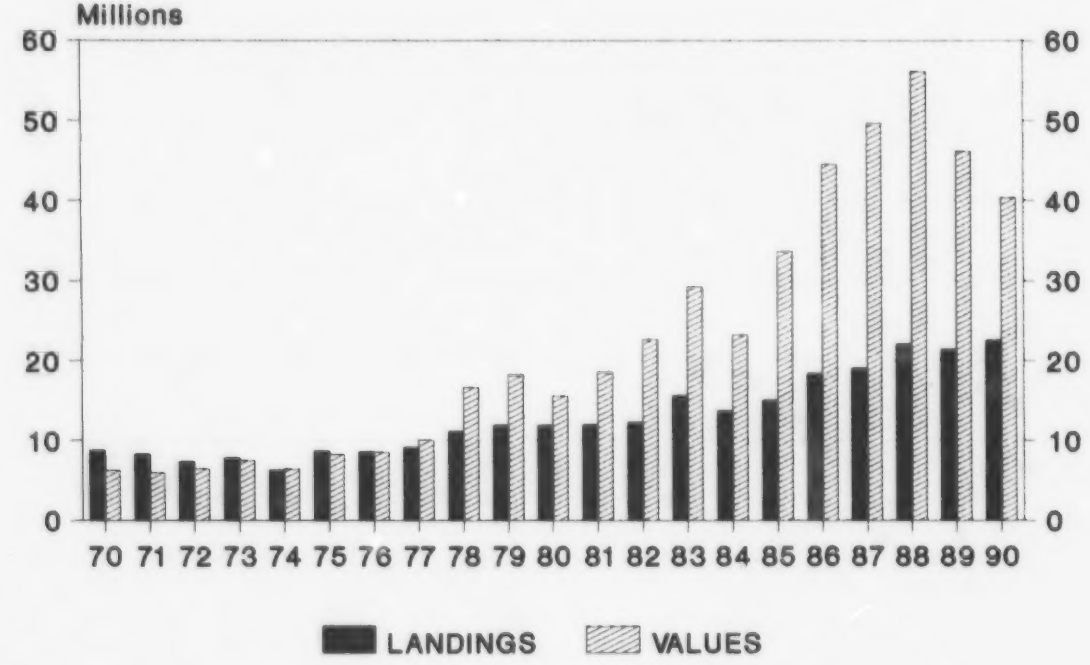
P.E.I. FISH LANDINGS
1975-89, (Millions lbs)



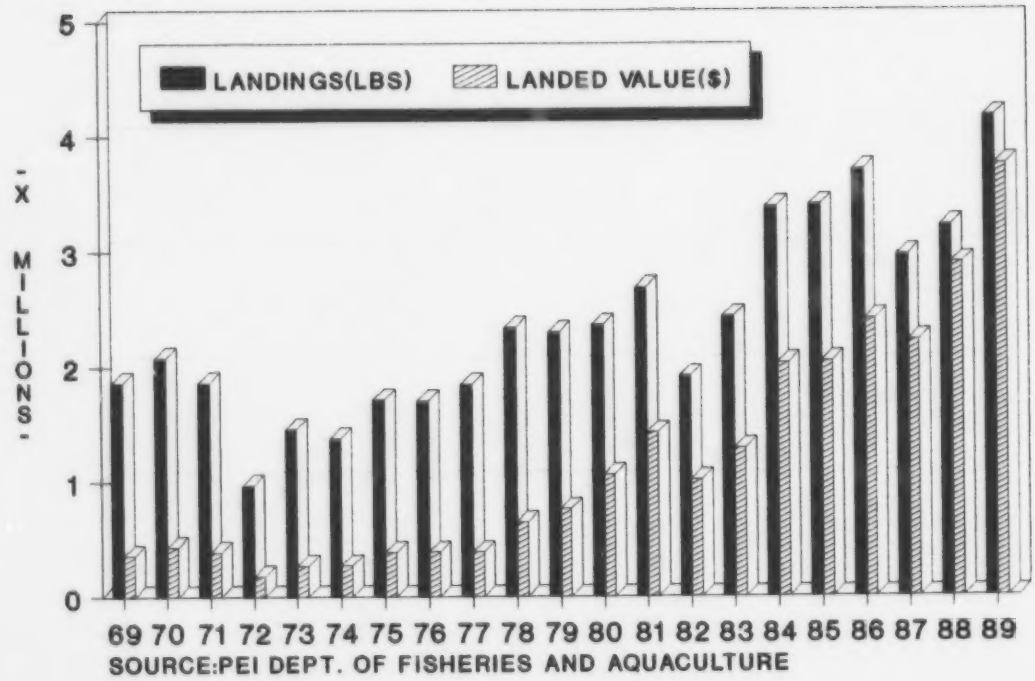
P.E.I. FISH LANDINGS
1975-89, (Millions $)



P.E.I. LOBSTER LANDINGS & VALUES
1970-1990

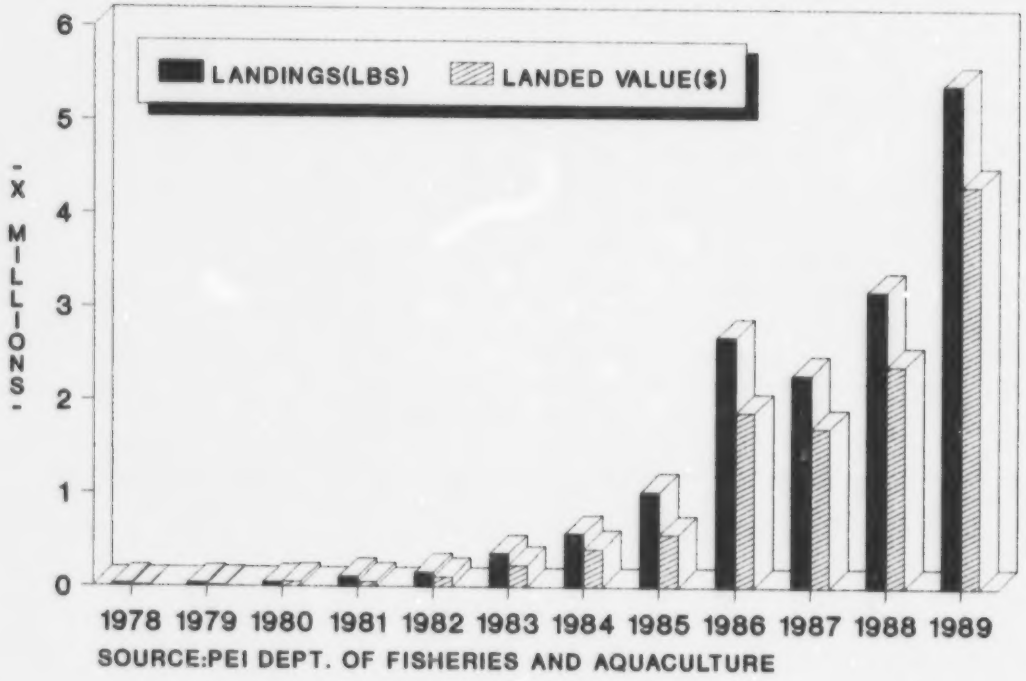


PEI OYSTER LANDINGS BY YEAR,1969-1989

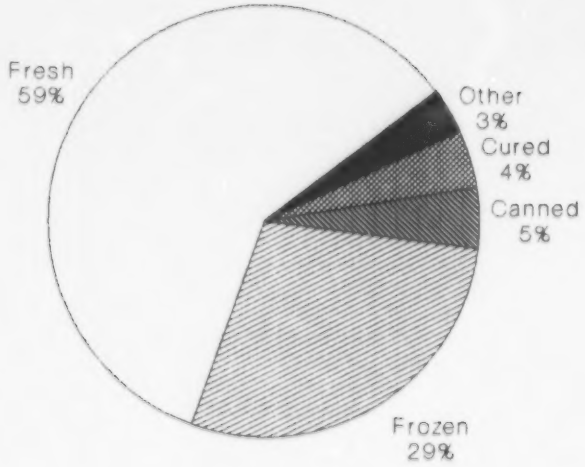


SOURCE:PEI DEPT. OF FISHERIES AND AQUACULTURE

PEI CULTIVATED MUSSEL LANDINGS BY YEAR, 1978-1989

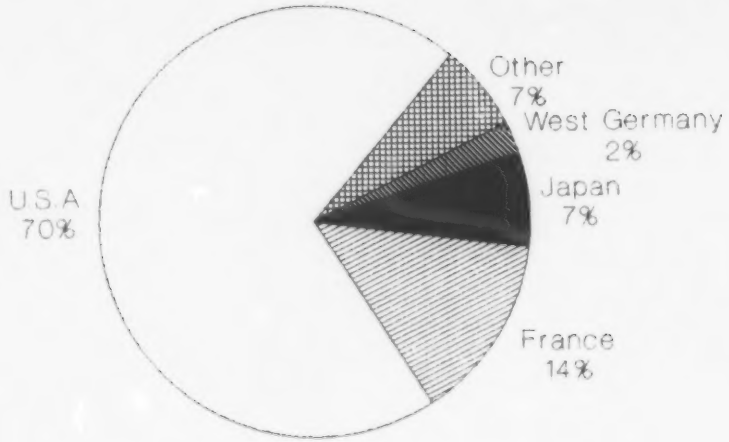


P.E.I. PRODUCTION SALES
% of Volume by Product, 1989



Preliminary

P.E.I. EXPORT MARKETS-FISH PRODUCTS
% of Value Per Country, 1989



ORGANIZATIONAL CHART
DEPARTMENT OF FISHERIES AND AQUACULTURE